INSTITUTIONAL DEVELOPMENT PROPOSAL

CONTENTS

EXECUTIVE SUMMARY

National Institute of Technology Karnataka (NITK), Surathkal has achieved significant growth in all its spheres of activities since 50 years of glorious existence and is consistently rated among the top ten technological institutions of the country as well the top NIT. NITK has recently won ISTE-KIIT National Award for the Best Technical University in the country. NITK is committed to generate responsible human capital to meet national and global requirements. The vision of the institute is to transform students into good human beings, responsible citizens and competent professionals focusing on assimilation, generation and dissemination of knowledge. Since inception and particularly after becoming an Institution of National importance, NITK is honorably fulfilling all the commitments envisaged by the NIT Act of 2007 and the NIT Statutes under the able and dynamic guidance of its Board of Governors.

NITK at present offers 9 undergraduate programs (4 year B. Tech) and 29 postgraduate programs (M. Tech, MBA, MCA and M.Sc.). NITK has the distinctions of offering one of the highest numbers of postgraduate programs among all the NITs. NITK is again among the top in terms of the highest number of B. Tech. programs accredited by the National Board of Accreditation (NBA), with all 9 of them awarded with the highest rating. NITK was one amongst the leading Centrally Funded Institutions (CFIs) to participate in the World Bank assisted project "Technical Education Quality Improvement Program (TEQIP)". Under Phase I of the project, NITK received a total grant of about Rs. 240 millions and identified as one of the top performers in implementing the project. The assistance provided under Phase-I have facilitated improvement in physical infrastructure, up gradation and modernization of laboratories, establishment of several interdisciplinary Centers of Excellence, Faculty and Staff Development for improved competence and Networking with Industries and Academia from India and Abroad. With a view to sustain and scale-up the reform process for embedding gains in the system and to take the transformation to a higher level, the Board of Governors of NITK in its meeting held on 13th August, 2010 formally approved this proposal and the Institute is fully geared to implement the prestigious project namely TEQIP-II for a four year period commencing from this year.

In view of the globalization of technical education and entry and operation of foreign universities into the country, NITK has to make concentrated efforts to exploit its strengths and establish itself as a world-class institution offering the best industry relevant academic programs. The Second Phase of TEQIP as a sequel to TEQIP-I, is a holding hand in promoting these efforts and the assistance/ inputs provided under this program will guarantee a new and exalted status for NITK to be among the best technical universities of the world.

This document is an Institutional Development Proposal (IDP) containing details of the key activities and action plans for successful and timely implementation of the project at NITK during the period 2010-2014. The Institutional TEQIP Unit headed by a senior professor from engineering discipline with nine nodal officers for various activities like Procurement, Academic, Finance, Civil Works including Environmental Management, Faculty and Staff Development, Equity Assurance Plan, Industry-Institute Interaction, Monitoring and Evaluation including Disclosure Management and

Institutional Management Capacity Enhancement along with necessary supporting staff has been already constituted.

The envisaged activities and action plan given in this proposal are based on the identification of the following five major objectives of the sub component 1.2 which is aimed at *Scaling-up Postgraduate Education and Demand Driven Research & Development and Innovation:*

1. Strengthening of M. Tech and Ph D Programs
2. Scaling –up Quality Research, Development and Innovation
3. Enhanced Interaction with Industry
4. Faculty and Staff Development for Improved Competence
5. Academic Support for Weak Students

Strategic Plan of NITK envisioning its Development Plan for the next ten years has been launched on August 6, 2010 during the auspicious occasion of the 51st Foundation day of the institute and to mark the successful completion of year long activities conducted as part of the Golden Jubilee Celebrations of NITK.

Development of Strategic Management model consisted of seven processes that encompass formulating the Vision and Mission, Environment Analysis, developing goals and objectives at institutional and departmental levels, strategy implementation, strategic evaluation and control.

The goals and objectives identified in the Strategic Plan and that of sub-component 1.2 are fully coherent with the 11th five year plan objectives of the Union Government for Higher Education and the National Policy for Education (NPE). Key activities proposed under the above objectives are summarized below:

Strengthening of M. Tech and Ph D Programs

Scaling-up enrolment in the existing Masters and Doctoral programmes by addition of more Teaching and Research Assistantships for non GATE candidates, refurbishing of existing PG laboratories, joint M. Tech programmes with Industries, R&D Organizations and Foreign Universities for attracting quality students, introduction of part-time M. Tech programmes for working professionals and Five Year Integrated M. Tech programmes in all engineering departments to attract bright B. Tech students to PG education and research, interdisciplinary M. Tech programmes in frontier areas of Renewable Energy, Nanotechnology, Software Engineering and Precision Engineering under the auspices of the recently established Centres of Excellence.

Scaling up Quality Research, Development and Innovation

Several MOUs have already been signed with world class institutions/multinational companies to promote joint publications, establishment of state of the art laboratories, joint submission of proposals to funding agencies, besides conduct of faculty and student exchange programmes.

Special efforts to develop research interest among undergraduate students include enhancing the existing Summer Internship Programmes (SIP) for pursuing research work in industries and academic institutions from India and abroad, participation in Winter Science Camp for "Innovation in Science Pursuit for Inspired Research (INSPIRE)" Interns, a DST programme of Government of India, support for participation in BAJA SAE INDIA competition for developing all terrain vehicles supported by the Society of Automotive Engineers (SAE) India, scaling up the Student Networking Programme (SNP) for offering technical expertise to neighbouring technical institutions, facilitating Surathkal Innovation Challenge (SIC), an initiative of NITK Alumni for identifying and commercializing innovative ideas of undergraduate students.

Enhanced Interaction with Industry

Major activities proposed are entering into MOUs with National and Multi National companies for conducting joint Masters and Doctoral programmes, constitution of Private Sector Advisory Group (PSAG) with active participation of Industry Associations and major industries of the region, setting up of a Society for Innovation and Development (SID) as a Nodal Agency to setup programme units, joint R & D centers and management of group projects, enhanced Alumni interaction and networking under the guidance of Dean (Alumni Affairs).

Faculty and Staff Development for Improved Competence

Based on the Annual Training Need Analysis (TNA) conducted by the Institute, a detailed Faculty and Staff Development Plan has been drawn to train the entire faculty and staff of the Institute in subject knowledge, research competence up gradation as well as in basic and advanced pedagogy. 18 months faculty development plan is presented to complete the entire training schedule during the first one and half years of the project without affecting regular academic work of the Institute.

Academic Support for Weak Students

In addition to strengthening the existing activities like student peer tutoring, mentoring by alumni and communication skill development classes, it is proposed to sign MOU with Centre for Research & Education for Social Transformation (CREST), which was originally incubated by the Indian Institute of Management, Kozhikode since 2002 with the support of Government of Kerala, for conducting orientation programmes for SC/ST/OBC and academically weak students, Entrepreneurship Development Programmes (EDP) and Professional Skill Development Programmes, Guidance programmes to pursue higher education in world class institutes, conduct of finishing schools in the renovated Yogakshema Center of the Institute.

Budget Requirements for the Project Period with year wise break up

(Rupees in Crores)

Sl. No	Activities	Project Life Allocation	Financial year				
			2010-11	2011-12	2012-13	2013-14	2014-15
1	Infrastructure improvements for teaching, training and learning through:						
	(i) Establishment of new laboratories for new and existing PG programmes, faculty research, etc. (40%)	5.60	0.56	2.8	2.24	-	-
	(ii) Updation of learning resources (2%)	0.28	0.028	0.084	0.084	0.084	-
	(iii) Procurement of furniture (5%)	0.70	0.07	0.35	0.28	-	-
	(iv) Modernization and strengthening of libraries and increasing access to knowledge resources (4%)	0.56	0.056	0.448	0.056	-	-
	(v) Refurbishment (Minor Civil Works) (3%)	0.42	0.042	0.21	0.168	-	-
2	Providing Teaching and Research Assistantships (16%)	2.24	0.14	0.56	0.56	0.56	0.42
3	Enhancement of R&D and consultancy (5%)	0.70	0.02	0.21	0.21	0.21	0.05
4	Faculty and Staff development for improved competence based on TNA (10%)	1.40	0.04	0.42	0.42	0.42	0.10
5	Enhanced interaction with Industry (5%)	0.70	0.02	0.21	0.21	0.21	0.05
6	Institutional Management Capacity enhancement (2%)	0.28	0.028	0.084	0.084	0.084	-
7	Implementation of institutional reforms (1%)	0.14	-	0.07	0.07	-	-
8	Academic support for weak students (2%)	0.28	0.0175	0.07	0.07	0.07	0.0525
9	Incremental Operating Cost (5%)	0.70	0.02	0.21	0.21	0.21	0.05
TOTAL (100%)		14.00	1.0415	5.726	4.662	1.848	0.7225

It is expected that successful implementation of this project will result in increased output of M. Tech and PhD graduates, qualified and competent faculty, quantum leap in peer reviewed publications and sponsored research and industrial consultancies, improved academic performance of SC/ST/OBC/women and academically weak students and their campus placement rate enabling NITK to become a truly world class institution.

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SECTION –I: INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity

Name of the Institution : National Institute of Technology Karnataka, Surathkal

Is the Institution AICTE approved? : Yes

Furnish AICTE approval no. : NIT Act No.29 of 2007, Parliament of India

Type of Institution : Centrally Funded Institution (CFI)

Status of Institution : Institution of National Importance vide NIT Act

Names of Head of Institution and Project Nodal Officers

Heads and Nodal Officers	Names	Phone Numbers	Mobile Numbers	Fax Numbers	E-mail Addresses
Head of the Institution	Swapan Bhattacharya	0824 - 2474034			director@nitk.ac.in
TEQIP Coordinator	Prasad Krishna	0824 - 2474081	9481263296	0824 - 2474082	krishnprasad@gmail.com
Project Nodal Officers for:					
Co- Coordinator	U. Sripati	0824 - 2473503	9845056189		sripati_acharya@yahoo.com
Finance & EAP	T. Laxminidhi	0824 - 2473505	9480575653		laxminidhi_t @yahoo.com
Procurement Management	Ravikiran Kadoli	Extn: 3658	9844400659		rkkadoli@rediffmail.com

1.2 Academic Information

- **Engineering programs offered in the Academic year 2013-14**

Sl. No	Title of Program	Level (UG, PG, PhD)	Duration (Years)	Year of [1] starting	Present [2] Sanctioned Annual Intake	Total Student strength
1	Civil Engineering	UG	4	1960	92	406
2	Mechanical Engineering	UG	4	1960	139	608
3	Electrical & Electronics Engg.	UG	4	1960	93	426
4	Electronics & Communication Engg.	UG	4	1970	93	427
5	Chemical Engg.	UG	4	1965	46	204
6	Metallurgical & Materials Engg	UG	4	1965	46	170
7	Mining Engg.	UG	4	1984	46	162
8	Computer Engg.	UG	4	1986	92	423
9	Information Technology	UG	4	2000	93	408
10	Structural Engineering	PG	2	1966	28	53
11	Geotechnical Engg.	PG	2	1989	17	26
12	Environmental Engg.	PG	2	2004	28	46
13	Transportation Systems Engg	PG	2	2004	28	47
14	Construction Technology and Management	PG	2	2007	28	51
15	Marine Structures	PG	2	1966	29	44
16	Water Resources Engineering & Management	PG	2	1972	16	25
17	Remote Sensing & GIS	PG	2	2008	29	33
18	Thermal Engg.	PG	2	1971	17	30
19	Mechatronics Engg.	PG	2	2008	28	49
20	Manufacturing Engg.	PG	2	1989	16	29
21	Design & Precision Engg.	PG	2	2014	16	13
22	Power and Energy Systems	PG	2	1994	28	48
23	VLSI Design	PG	2	1968	29	49
24	Communication Engg	PG	2	1989	29	56
25	Chemical Plant Design	PG	2	1972	16	15
26	Industrial Pollution Control	PG	2	1994	28	42
27	Industrial Biotechnology	PG	2	2007	28	43

Sl. No	Title of Program	Level (UG, PG, PhD)	Duration (Years)	Year of [1] starting	Present [2] Sanctioned Annual Intake	Total Student strength
28	Process Metallurgy	PG	2	1972	17	21
29	Materials Engg.	PG	2	1990	28	49
30	Nanotechnology	PG	2	2011	16	21
31	Computer Science & Engg.	PG	2	1996	29	54
32	Computer Science & Engg. – Information Security	PG	2	2007	28	50
33	Computational Sciences (earlier System Analysis and Computer Applications)	PG	2	1989	28	48
34	Information Technology	PG	2	2010	28	48
35	Civil Engineering	PhD	3-7	2003	06	43
36	Mechanical Engineering	PhD	3-7	2003	17	86
37	Electrical & Electronics Engg.	PhD	3-7	2003	07	30
38	Electronics & Communication Engg.	PhD	3-7	2003	07	26
39	Chemical Engg.	PhD	3-7	2003	08	34
40	Metallurgical & Materials Engg	PhD	3-7	2003	06	33
41	Mining Engg.	PhD	3-7	2003	01	14
42	Computer Engg.	PhD	3-7	2003	06	21
43	Information Technology	PhD	3-7	2003	04	14
44	Applied Mechanics & Hydraulics Engg.	PhD	3-7	2003	07	48

Note:

1. Although the year of starting of PhD programs in Engineering Disciplines is shown as 2003, several doctoral programs were awarded under affiliation to University of Mysore and Mangalore University from 1980 onwards.
2. PG: In addition, two students are admitted per every M. Tech programme in the category of M. Tech by Research and admissions made under the QIP Scheme.
3. Ph D also includes part time Ph D candidates and admissions made under QIP Scheme in Engineering / OIP (Poly).

- **Accreditation Status of UG programs (see Annexure-I)**

Sl. No.	Title of UG programs being offered	Whether eligible for accreditation or not?	Whether accredited as on 31st March 2015?	Whether "Applied for" as on 31st March 2015?
1	Information Technology	Eligible	Accredited	
2	Civil Engineering	Eligible	Accredited	
3	Chemical Engineering	Eligible	Accredited	
4	Computer Engineering	Eligible	Accredited	
5	Electrical & Electronics Engg	Eligible	Accredited	
6	Mechanical Engineering	Eligible	Accredited	
7	Electronics & Communication Engg.	Eligible	Accredited	
8	Mining Engineering	Eligible	Accredited	
9	Metallurgical and Material Engineering	Eligible	Accredited	

- **Accreditation Status of PG programs**

Sl. No.	Title of PG programs being offered	Whether eligible for accreditation or not?	Whether accredited as on 31st March 2015?	Whether "Applied for" as on 31st March 2015?
1	Computational Mathematics	Not Eligible	NA	NA
2	Computer Science & Engineering	Eligible		Yes
3	Materials Engineering	Eligible		Yes
4	Process Metallurgy	Eligible		Yes
5	Chemical Plant Design	Eligible		Yes
6	Industrial Pollution Control	Eligible		Yes
7	Communication Engineering	Eligible		Yes
8	VLSI	Eligible		Yes
9	Power & Energy System	Eligible		Yes
10	Manufacturing Engineering	Eligible		Yes
11	Thermal Engineering	Eligible		Yes

Sl. No.	Title of PG programs being offered	Whether eligible for accreditation or not?	Whether accredited as on 31st March 2015?	Whether "Applied for" as on 31st March 2015?
12	Marine Structures	Eligible		Yes
13	Structural Engineering	Eligible		Yes
14	Water Resources Engg. & Management	Eligible		Yes
15	Geotechnical Engineering	Eligible		Yes
16	Environmental Engg.	Eligible		Yes
17	Transportation Systems Engg.	Eligible		Yes
18	Remote Sensing & GIS	Eligible	No	No
19	Mechatronics Engg.	Eligible		Yes
20	Computer Science & Engg. – Information Security	Eligible	No	No
21	Industrial Biotechnology	Eligible		Yes
22	Construction Technology and Management	Eligible	No	No
23	Information Technology	Not Eligible	NA	NA
24	Nanotechnology	Not Eligible	NA	NA
25	Design & Precision Engg.	Not Eligible	NA	NA

1.3 Faculty Status (Regular/On-Contract Faculty as on April 30th, 2015)

Faculty Rank	No. of Sanctioned Regular Posts	Present Status : Number in Position by Highest Qualification												Total Number of regular faculty in Position	Total Vacancies	Total Number of contract faculty in Position
		Doctoral Degree				Masters Degree				Bachelor Degree						
		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines				
		R	C	R	C	R	C	R	C	R	C	R	C			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15= (3+5+7+9 + 11+13)	16= (2-15)	17= (4+6+8+ 10+12+ 14)
Prof.	**58**	**48**	**-**	**11**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**59**	**-1 ****	**-**
Asso. Prof	**116**	**18**	**-**	**5**	**-**	**4**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**28**	**88 ****	**-**
Asst. Prof	**201**	**89**	**-**	**39**	**-**	**22**	**-**		**-**	**-**	**-**	**-**	**-**	**150**	**51 ****	**-**
Total	**375**	**155**	**-**	**56**	**-**	**26**		**1**	**-**	**-**		**-**		**237**	**138****	**-**

Prof = Professor, Asso Prof = Associate Professor, Asst Prof = Assistant Professor, Lec =Lecturer, R= Regular, C=Contract

(*) Including Professor/ Associate Professor promoted under Career Advancement Scheme. NITK calls for Standing Advertisement for filling up faculty positions on a continuous basis.

(**) actual vacancy position against sanctioned regular posts. In addition adjunct faculty and visiting faculty are appointed in all departments. Professorial chairs from industries are also appointed.

1.4 Baseline Data (all data given restricted to engineering disciplines/fields only)

SL. No.	Parameters	value
1	Total strength of students in all programmes and all years of study in the year 2009-10	3566
2	Total women students in all programmes and all years of study in the year 2009-10	578
3	Total SC students in all programmes and all years of study in the year 2009-10	464
4	Total ST students in all programmes and all years of study in the year 2009-10	185
5	Total OBC students in all programmes and all years of study in the year 2009-10	447
6	Number of fully functional P-4 and above level computers available for students	912

SL. No.	Parameters	value
	in the year 2009-10	
7	Total number of text books and reference books available in library for UG and PG students in the year 2009-10	25000
8	% of UG students placed through campus interviews in the year 2009-10	89%
9	% of PG students placed through campus interviews in the year 2009-10	34%
10	% of high quality undergraduates (>75% marks) in the year 2009-10	68%
11	% of high quality postgraduates (>75% marks) in the year 2009-10	87%
12	Number of research publications in Indian refereed journals in the year 2009-10	40
13	Number of research publications in International refereed journals in the year 2009-10	152
14	Number of patents obtained in the year 2009-10	0
15	Number of patents filed in the year 2009-10	2
16	Number of sponsored research projects completed in the year 2009-10	15
17	The transition rate of students in percentage from 1st year to 2nd year in the year 2009-10 for : (i) all students (ii) SC (iii) ST (iv) OBC	 99% 100% 94% 100%
18	IRG from students fee and other charges in the year 2009-10 (Rs. in lakh)	1296
19	IRG from externally funded R&D projects, Consultancies in the year 2009-10 (Rs. in lakh)	38
20	Total IRG in the year 2009-10 (Rs. in lakh)	1400
21	Total annual recurring expenditure of the applicant entity in the year 2009-10 (Rs. in lakh)	5775
22	Number of Joint publications with National authors in the year 2009-10	72
23	Number of Joint publications with International authors in the year 2009-10	40
24	Number of R&D products commercialized in the year 2009-10	2
25	Number of joint M. Tech programmes with institutions undertaken in the year 2009-10	5
26	Number of joint M. Tech programmes with Industry undertaken in the year 2009-10	13
27	Number of joint PhD with institutions undertaken in the year 2009-10	15
28	Number of joint PhD with Industry undertaken in the year 2009-10	4
29	Number of joint consultancies undertaken with institutions in the year 2009-10	1
30	Number of joint consultancies undertaken with Industry in the year 2009-10	9

1.5 Benchmark for Sub-component 1.2

Table-1 (Table 33 of PIP)

Benchmarks for Institutions to Qualify for Sub-component-1.2

Sl. No.	Attainment Parameters	Bench-mark values	Institution's response (Yes/No)
1.	Does the institution agree to implement all academic and non-academic reforms given as below: • Implementation of curricular reforms • Exercise of autonomies • Establishment of Corpus Fund, Faculty Development Fund, Equipment Replacement Fund and Maintenance Fund • Generation, retention and utilization of revenue generated through variety of activities • Institutions to fill-up all existing teaching and staff vacancies • Delegation of decision making powers to senior functionaries with accountability • Improve student performance evaluation • Improvement performance appraisal of faculty by students • Provide faculty incentive for Continuing Education (CE), consultancy and R&D • Obtaining accreditation	Yes	Yes
2.	Availability of academic autonomy as recognized by UGC for both UG and PG programmes	Yes	Yes
3.	Presence of Board of Governors with an eminent academician or industrialist as the Chairperson	Yes	Yes (see **Annexure – II**)
4.	Percentage of eligible UG programmes accredited or applied for	60%	100%
5.	Percentage of eligible PG programmes accredited or applied for	40%	88%
6.	Cumulative number of PhDs produced in the last three academic years (2007-08, 2008-09 and 2009-10) or Cumulative number of M. Tech produced in the last three academic years (2007-08, 2008-09 and 2009-10)	5 50	80
7.	Faculty positions filled on regular full time basis as percentage of total faculty positions sanctioned in accordance with the AICTE prescribed student to faculty ratio	65%	67%
8.	Percentage of regular faculty with PhD in engineering as percentage of total faculty	15%	63%

SECTION-II INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)

2.1 Introduction

National Institute of Technology Karnataka (NITK), Surathkal has achieved significant growth in all its spheres of activities since 50 years of glorious existence and is consistently rated among the top ten technological institutions of the country as well the top NIT. NITK is committed to generate responsible human capital to meet national and global requirements. The vision of the institute is to transform students into good human beings, responsible citizens and competent professionals focusing on assimilation, generation and dissemination of knowledge. Since inception and particularly after becoming an Institution of National importance, NITK is honorably fulfilling all the commitments envisaged by the NIT Act of 2007 and the NIT Statutes under the able and dynamic guidance of its Board of Governors.

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The initial part of the Strategic Plan for NITK consisted of defining the Vision and Mission statements. These were conceptualized and scripted after detailed deliberations and consultations with the stakeholders, and were then approved by the Board. A rigorous environmental analysis, both internal and external, was then conducted. SWOT analysis and Critical Success Factors (CSFs) analysis were also undertaken for setting goals and strategies. Based on the strategic analysis, eight

Institutional goals were identified and the objectives under each goal were generated. To augment the process, workshops and seminars on strategic plan were organized for the faculty. Short-term goals to be achieved within l-2 years and long-term goals to be achieved within 5 -10 years were identified by each Department after discussion and consultation with the respective faculty. Further, Institutional and Departmental performance measures and action plans were formulated. Seven Key Strategies along with the necessary actions were identified and these included Governance and Organization, Quality Assurance (QA), Human Resource Management (HRM), Resource Optimization, Brand Image, Research & Consultancy and Educational Social Responsibility (ESR). The process of implementation and the necessary controls for monitoring the Strategic Plan were finalized after discussion with the stakeholders. Opinions were also sought from external experts while finalizing the draft Strategic Plan. Financial implication of the Strategic Plan over a period of ten years was worked out. It is estimated that Rupees two hundred and five crores (Rs. 205 crores) will be needed in addition to the regular budget of the Institute. Funding for the strategic plan implementation will be obtained from various sources. Funding under TEQIP – II will certainly help NITK to implement some of the strategies as envisioned in the Strategic Plan Document.

It is highly gratifying to note that most of the inputs for preparing the Strategic Plan were provided by the stakeholders, thus making the strategic planning process truly participatory. The Strategic Plan will enhance the capability of NITK in terms of both quality and productivity of services so as to transform the Institute into a truly world-class institution thus realizing its vision and mission.

This Strategic Plan was developed for NITK, Surathkal as a core component of Leadership Vision to appropriately address the environmental changes, optimum utilization of resources and achieving success through a well-planned action. This strategy is designed to fit the organization's external and internal situation, build sustainable competitive advantage and improve the organization performance.

2.2 SWOT Analysis

SWOT Analysis of the Institution was carried out with the help of all the teaching departments, the central facilities and the support centres. A meeting of the heads of the respective departments and the central facilities was called for, where the process of identifying the strengths, weaknesses, opportunities and the threats was detailed. The respective department and section heads were requested to gather the SWOT for their department and centres through an extensive interaction with all the stake holders. The stakeholders identified for the departments were the students belonging to all the programmes run by the department at the Undergraduate, the Post graduate and the Doctoral levels, the faculty and the non-teaching staff, the suppliers of equipments to the department, the employers of the graduates of the department and the regulatory agencies. The details collected by the department from all such stakeholders formed the initial SWOT Analysis. This was then collected from all the departments and compiled at the Institution level. The compilation

was further subjected to a rigorous screening at the Institution level at several meetings. The department representatives and subject experts then translated the individual departments' SWOT Analysis to the Institution's strengths, weaknesses, opportunities and threats. The SWOT Analysis was also supplemented by the Stakeholder Analysis and the Environmental Appraisal. The results of these analyses were also incorporated and the final SWOT for the Institution was prepared as summarized below:

Strengths

- Rated within the top 10 leading technical institutions in India.
- 50 years of committed service in professional education.
- Strong leadership and support from the Board.
- Talented students belonging to all sections of the society.
- Motivated and competent manpower at all levels.
- State-of-art equipment and infrastructure.
- Well tested processes-administration, academics and finance.
- Brand image and visibility.
- High placement record.
- Well placed alumni.
- Successful alumni entrepreneurs.
- Residential facilities for all students and faculty.
- Strong industry-institution interaction.
- MOUs signed/Partnerships/Collaborations with reputed institutions and industries within and outside India.

Weaknesses

- Shortage of basic utilities-water and power
- Lesser number of research publications in reviewed journals.
- Availability of expertise and research manpower in specialized disciplines do not match necessarily requirements of our future programmes.
- Lack of initiative to acquire patents.
- Inadequate schemes to attract, retain, award and recognize qualified faculty.
- Unavailability of land for expansion.
- Delay in MIS/ERP implementation within the Institute.

Opportunities

- Scope for new programmes including dual degree and multi-disciplinary programmes.
- Setting up of new campuses to start new initiatives.
- Identify new market segments at all geographical levels.
- Linkages with external institutions and scope for more MOUs.
- Evolving state-of-the-art technology for teaching, training, research and consultancy.

- ❖ Credit exchange scheme with reputed institutions within India and abroad.

Threats

- ❖ Adverse economic and market changes.
- ❖ Increasing intensity of competition among other similar institutions.
- ❖ Fast obsolescence of technology and emergence of new technologies
- ❖ Market appreciation of compensation for professional manpower.
- ❖ Imposition of new regulatory requirements.
- ❖ Funding constraints.

Challenges for implementation of SWOT Analysis

The SWOT Analysis conducted at the Institution level threw light on the strengths, weaknesses, opportunities and threats. This analysis forms the core of the Institution appraisal process. The SWOT of the Institute has been identified after a rigorous screening process and has undergone numerous iterations to arrive at the correct pitch. The SWOT Analysis so identified is also supplemented through Stakeholder Analysis and the Environmental Appraisal. The Institution needs to capitalize on its inherent strengths, convert its weaknesses into strengths, use the opportunities available internally and externally to combat the threats facing it. But the Institution faces certain challenges in implementing its SWOT Analysis. The external environment in which the Institution operates is a very dynamic one and this requires constant updating of advanced and domain specific knowledge and technologies. The economic environment also constantly throws up adverse changes which needs close monitoring. The changing regulatory requirements also make the implementation of the SWOT Analysis difficulty. One of the greatest threats facing the Institution is the market appreciation of compensation for professional manpower. The Institution is centrally funded which makes it quite difficult to implement changes in its compensation system. But the Institution has been able to subvert some of its weaknesses of limited space, power and water through additional capacity building.

Vision, Mission and Goals and Objectives of NITK

Vision

To facilitate transformation of students into good human beings, responsible citizens and competent professionals, focusing on assimilation, generation and dissemination of knowledge.

Mission

- Impart quality education to meet the needs of profession and society, and achieve excellence in teaching-learning and research
- Attract and develop talented and committed human resource, and provide an environment conducive to innovation, creativity, team-spirit and entrepreneurial

leadership

- Facilitate effective interactions among faculty and students, and foster networking with alumni, industries, institutions and other stake-holders
- Practice and promote high standards of professional ethics, transparency and accountability

Goals and Objectives

- Promote Education meeting International Quality Standards.
- Develop and Sustain an Environment to Encourage Innovation, Creativity, Team-Spirit and Entrepreneurial Leadership.
- Enhance Research Output and Integrate with Teaching-Learning Process.
- Create and Maintain State-of-the-art Infrastructure and Facilities.
- Attract and Develop Talented and Committed Human Resource.
- Facilitate Effective Interaction among Faculty and Students.
- Establish Effective Networking with Alumni, Industries, Institutions and other Stake-Holders, at National and International Levels.
- Conform to the Highest Standards of Professional Ethics.

2.3 Objectives and Outcomes

The SWOT Analysis conducted at the Institutional level aided the formulation of long term goals and objectives for the Institution. The goals are in line with the Vision and Mission of NITK. These goals were identified for several key areas such as corporate governance, contributing to the teaching learning process and upgrading the infrastructure to support the teaching and research activities. The long term goals for the Institution are identified as below:

1. Effective and efficient organization and management.
2. Attract and nurture talented students.
3. Affirm highest quality of teaching and learning process.
4. Strengthening and nurturing Human Resources: Faculty and Staff.
5. Mobilization, optimum allocation and utilization of financial resources.
6. Provide modern infrastructure and facilities.
7. Enhance Research and Consultancy activities.
8. Undertake extension activities.

In line with the above identified goals, the following five major objectives identified for the sub component 1.2 which is aimed at *Scaling-up Postgraduate Education and Demand Driven Research & Development and Innovation* are:

1. Strengthening of M. Tech and Ph D Programs

2. Scaling –up Quality Research, Development and Innovation
3. Enhanced Interaction with Industry
4. Faculty and Staff Development for Improved Competence
5. Academic Support for Weak Students

Strategic Plan of NITK envisioning its Development Plan for the next ten years has been launched on August 6, 2010 during the auspicious occasion of the 51st Foundation day of the institute and to mark the successful completion of year long activities conducted as part of the Golden Jubilee Celebrations of NITK. Development of Strategic Management model consisted of seven processes that encompass formulating the Vision and Mission, Environment Analysis, developing goals and objectives at institutional and departmental levels, strategy implementation, strategic evaluation and control. The goals and objectives identified in the Strategic Plan and that of sub-component 1.2 are fully coherent with the five year plan objectives for higher education and the National Policy for Education (NPE). For a comprehensive list of long term and short term goals of the institute along with the several objectives identified under each goal and the challenges thereon.

The expected *Outcomes* from the project are

1. Increased enrolment and output of graduates (M. Tech and Ph Ds)
2. Increased % revenue from externally funded R&D projects and consultancies in total annual revenue from all sources
3. Increase in the number of publications in journals, citations, patents
4. Increase in the number of joint publications with other institutions/industries
5. Increased transition rate, pass rate and campus placement rate of weak students including SC/ST/OBC/Women

Several action plans are presented in this proposal specifically to achieve the above outcomes in a phased manner.

Justification for Participation in Sub Component-2.1

Technical education is one of the most crucial components of human resource development having potential for adding value to products and services thereby improving the quality of our life. A major contributor to the global IT industry and other engineering streams which has contributed to the exponential growth of technical education in India. But the quality and quantity of the technical graduates passing out from the various technical institutions require a much more concerted effort from the policy makers. In this regard, the Government of India had adopted the National Policy on Education (NPE 1986 as revised in 1992) to promote efficiency and effectiveness of engineering education. The TEQIP II is a key component of NPE for increasing the quality of technical education in India.

NITK has been one of the foremost Institutions for utilizing the TEQIP I effectively. The benefits accrued to the Institution under this programme which led to quality improvement in the Teaching Learning process need to be continued. Quality improvement programmes have resulted in research interactions for the faculty which is evident in the increased number of research publications. The students have benefited from the enhanced knowledge base and also from the state-of-art laboratories, workshops, research interactions and national and international collaborations. The Institution is also geared towards increasing the number of M. Tech and Ph D graduates which is in tune with the objectives of the 11th Five Year Plan of the Government of India to increase the gross enrolment ratio in Higher Education. The Vision and Mission of NITK is also in line with the 11th Five Year Plan. One of the Mission statements of the Institute is to "Impart quality education to meet the needs of profession and society, and to achieve excellence in teaching-learning and research" which exactly corroborates the envisaged objectives of the national goal. In order to sustain the momentum gained under the auspices of the TEQIP I, and to meet the objectives of the NPE, the Institute is fully prepared to participate in the second Phase of TEQIP.

2.4 Action Plan for Scaling-up Enrollment in M. Tech and Ph D Programs

To attract high quality M. Tech and Ph D scholars, it is essential that the individual departments have a strong research and development focus along with strong links with industries in the form of consultancy and collaborative research projects. Hence, faculty members are encouraged to work on sponsored research projects, seek research grants, seek collaborative R&D projects with industry, conduct high quality research and actively participate in symposia and conferences thereby bringing visibility to the research and development and consulting activities of the institute. The presence of such an environment will attract young and motivated graduates and post graduates seeking higher education and careers in research and development to the institute. Further, grants obtained from funding institutions and industries can be used to grant scholarships to an increased number of researchers/ post graduate students over and above the number supported by GATE/ institution scholarships. It is proposed to recruit sufficient number of Teaching Assistants (TA) and Research Assistants (RA) who will enroll as part-time PG students and Ph D scholars respectively. They will be required to assist the faculty in conduction and evaluation of courses in addition to working on their respective research projects. An enhanced time frame shall be provided to them for completion of their degrees. This will give twin benefits of increased enrolment in PG / Ph D programs without adding significantly to the workload of faculty members.

Key to improving enrollment in post graduate/ research programs is to strengthen the individual departments so that a strong commitment to research and active collaboration with industry can be sustained. This will also result in additional benefits like possible job offers from top R&D institutions to the students in addition to bringing additional funding and projects. This will also help faculty members to expand their horizons, expand their knowledge base and become more competent teachers.

It has been observed that many Industries and R&D organizations are willing to train their personnel in the latest research and developmental trends in their respective fields and equip them with M. Tech/Ph D degrees. Thus, active collaboration with industries can result in an increase in the enrollment of post graduate / research students. This will be beneficial as faculty and students get exposure to the resent trends in industry while industry personnel get exposed to the state of art research being conducted in their field. In addition to increasing the number of Teaching Assistantships in the existing M. Tech programmes, it is also proposed to start inter-disciplinary M. Tech programmes in the areas of Nanotechnology, Precision Engineering, Renewable Energy Systems and Software Engineering under the auspices of the recently established Centres of Excellence.

Budget allocation for this activity is provided in **Table 2**. A Bar Chart showing the various activities and the time frame is given in **Figure – 1**.

2.5. Action Plan for Improving Collaboration with Industry

In order to sustain and promote industrial and economic growth, there is a need to train and develop the right kind of technical manpower. For this, it is essential to develop links with industries for bringing about a proper match between engineering education and the requirements of the industry. Industry-Institute-Interaction Cell (IIIC) has been established at NITK, Surathkal since 1989 with the purpose of enhancing Institute Industry Interaction for mutual benefits. The present activities of III Cell include handling of Testing and Consultancy works of all the departments, arranging endowment lectures, establishing MOU with different industries with well defined guidelines of interaction for mutual benefits. MOUs have been signed with industries like MRPL, Texas Instruments, Thermax, National Instruments, IBM, Robert Bosch during the last 4-5 years. The main content of MOU includes usage of facilities at either end. In addition to this, a few industries have sponsored professorial chair, established laboratories (IBM open power systems lab, Bosch Power tool lab) at NITK. III Cell has compiled the technical facilities in various departments in the form of a book called technical information digest. This book has been sent to about 250 industries in Karnataka. Institute laboratories are recognized for Quality Services in Testing, Certification and Calibration of Instruments, Equipments and Materials.

In addition to scaling-up the above mentioned tasks, it is planned to put more efforts to reach different industries relevant to all disciplines of engineering and have discussions with them and initiate joint programmes like research consultancy product development so that the faculty and the students get exposed to practical aspects of engineering and industry in turn is benefited in terms of improvement in products, new processes and materials.

The IRG through Testing and Consultancy has been improving since last 3-4 years. Additional efforts will be made under TEQIP – II to further increase the IRG. Experts from industry will be invited to deliver technical talks, demonstrate their products and provide inputs to students for improving their managerial skills. Emphasis will be laid on importance of quality practical training for students and

efforts will be made to convince leading industries to absorb more and more NITK students for internship and also for placement. More industries are sponsoring Academic Events and have Instituted Best Student Awards, and provided Project Training to B. Tech and M. Tech Students.

III Cell would support the training and placement department in providing adequate information about different industries so that more students are placed during campus recruitment. Presently, III Cell is establishing contacts with certain major industries that are capable of running joint PG programmes or joint consultancy and development works. The industries in the local region are encouraged to make use of the testing and experimental facilities in the Institute. Under the Industry Institute Interaction improvement scheme of TEQIP – II, the following activities are planned.

1) Reaching out to major industries and R & D organizations to enter into an MOU for starting of new PG programmes.
2) Make presentations about all the departments of NITK in different industries so as to attract major consultancy works or sponsored research projects.
3) Request Industries of relevance to establish laboratories in different departments and also participate in the running of the laboratory.
   Presently, three such laboratories have been setup by Robert Bosch, IBM, and National Instruments.
4) Facilitate faculty to prepare project proposals for funding agencies like DRDO, BARC, BRNS, DST, CSIR etc.
5) Convince the industries the importance of providing quality practical training and good projects to both UG and PG students in industries.
6) Request the industry experts to deliver technical talks on a regular basis at NITK, Surathkal.
7) Encourage faculty members to undergo industrial training and also to offer refresher courses for industry employees.
8) To identify industries from where experts can be invited for faculty recruitment process and also can be on academic/governing bodies of NITK like BOS, Senate, Building Committees and BOG.
9) Setting-up of a Society for Innovation and Development (SID):

   This will be a nodal agency to operate as a link between the Institute and Industries. The mission of SID is to enable India's innovations in Engineering and technology by creating a purposeful and effective channel to help and assist industries and business establishments to compete and prosper in the face of global competition, turbulent market conditions and fast moving technologies. SID strives to bring the leading intellectuals of NITK and the fruits of their research and development efforts closer to industries and business establishments in a cordial atmosphere with prosperity of the Nation as the ultimate goal.

   Some of the activities of SID include:

Individual or Group Projects:

SID may undertake research and development projects based on individual or joint proposals from the faculty of NITK in collaboration with industries, business establishments, National and International Organizations. Such organizations are welcome to enter into an agreement through SID with an intention to collaborate with NITK Departments to sponsor research projects.

Program Units

SID may set up program units which are work groups in identified areas that can undertake activities on a sustained basis. These units undertake multiple projects with varying degrees of flexibility to facilitate and expedite execution of the project.

Joint R & D Centres

SID may promote joint R & D programmes and R & D centres between NITK and National and International organizations.

Other Modes

SID may formulate new, innovative modes of interaction to suit the specific needs of any proposed collaborative activity between NITK and external agencies.

The tasks of this agency include the following.

a. Interaction with various Departments of NITK to identify areas of research / consultancy
b. Interaction with the industries on a continuous basis to seek research / consultancy projects.
c. Preparation of brochures in consultation with the departments for circulation among industries. This brochure to contain full details of consultancy works solutions to specific industrial problems offered by each department.
d. Preparation of project proposals on behalf of the NITK.
e. Organizing training programmes for executives from industries

10) Joint teaching / Research activity by Industry personnel

Facilitate short visits (1 to 2 months in a year) of Industry people to take up teaching / research activities. The person will be a part of the Industry as well as that of the Institute (as visiting faculty). The salary of the visiting personnel to be met from the institute funds for the period of his/her stay in the institute. This will enable the industry to offer good projects to the students on a continuous basis.

Budget allocation for this activity is provided in **Table 2.**

A Bar Chart showing the various activities and the time frame is given in **Figure – 2**.

2.6. Action Plan for Quantitatively Increasing and Qualitatively Improving Research

While urgent steps are being taken by the institute to fill up the existing vacancies so as to ensure that no faculty member is overloaded with teaching responsibilities, faculty members must be motivated to conduct high quality research. They are encouraged to form research groups, conduct high quality research, write research projects to procure high end equipment /software., supporting them in their endeavor to establish research contacts with peers in national and international universities/organizations, and motivate them to seek collaborative projects with industry which will bring funding as well as visibility to the individual faulty members and institute. Higher institutional visibility and an active research profile are the keys to attract high quality research and post graduate students whose work and support would be essential to sustain long term research goals.

Several initiatives have been taken at the National Institute of Technology Karnataka (NITK) to develop suitable technology for use by society. Two such initiatives are the Nirmithi Kendra which was set up for developing and deploying low cost but robust construction technologies for coastal areas and the Clay and Tile R&D center which has developed several low cost fixtures for use in building construction using low cost easily available raw materials. Both of these centers have rendered very good service to society at large by developing robust, low cost and innovative technologies and products for building construction keeping in mind the environmental conditions prevailing in India. The research activities of the Institute have been constantly increasing since attaining status of Institute of National importance. Research Advisory Board (RAB) has been established to provide Policy Directions for Research Activities in the Institute. Every Faculty Member is encouraged to have at least one Sponsored Research Project. Every Eligible Research Guide is encouraged to have at least one Ph D student. Newly Recruited Faculty members are provided with Seed Grant of Rs. 5 lakhs to initiate R & D Activities in Frontier Areas. Currently the Institute offers more than 50 Ph D fellowships per year. To scale-up M. Tech enrolment, admission to M. Tech by research programme has been introduced in all engineering departments. Currently more than 10 students are enrolled for M. Tech by research programme. NITK is recognized as Centre for AICTE sponsored National Doctoral Programme. NITK is also recognized as Centre for Quality Improvement Program for M. Tech and Ph D programme for sponsored teachers from other Technical Institutions. During 2008, more than 80 faculty members have been deputed to Universities abroad for research interactions under funding from TEQIP – I. In order to promote inter disciplinary research, several new Centres of Excellence have been established namely Centre for Materials Research, Centre for Sustainable Development, Centre for Virtual Instrumentation, Centre for Disaster Risk Reduction, Centre for wireless networking, Centre for Graphic Design. Several Faculty Members of NITK have taken up Post Doctoral Sabbatical Assignments in Universities Abroad. Establishment of Professorial Chairs in Emerging Areas of Technology funded by premier Industries, Alumni and Government Agencies is being initiated.

Budget allocation for this activity is provided in **Table 2**.

2.7 Action Plan for Developing Research Interest among UG students

The institute is currently in the process of drafting regulations for introducing five year integrated M. Tech programmes for 10+2 students so as to attract bright B. Tech students to PG education and research.

To develop research interest in UG students, research areas and opportunities therein shall be explained by leaders of various research groups at the entry point of students (typically third semester) to the individual departments. Interested students are involved in consultancy / sponsored research work conducted in the department. Further they are guided to obtain internships (Recently many UG students received DAAD scholarship for exchange programs in Germany) in leading R&D institutions and institutions of higher learning (many have completed internship in IITs/IISc) in India/ abroad. Students are also encouraged to credit PG/PhD level courses as electives and actively take part in the research activities of the department. Project work components are often shaped by research/consultancy/R&D work being done in the department. They are deputed to present papers in national and international conferences, participate in technical symposia and design competitions. Efforts are being made to channelize their enthusiasm and ability to synergize with the research activities of the department. This will bring twofold benefits, to the individual students in terms of expanded horizons and deeper knowledge of the discipline and to the department in terms of enthusiastic and committed manpower to enhance research output.

A few initiatives aimed at enhancing interest in R&D as well as research activities are enumerated below:

A unit of STEP (Science and Technology Entrepreneurs Park) is active in NITK. Several technology projects have been incubated here and a few are being incubated currently. Robosoft Technologies, a leading software company based in Karnataka was incubated here. Another leading company developing technologies for VLSI design, namely *Sankalp* Semiconductors has been set up by Alumni of NITK. By exposing undergraduate students to the latest practices in industry and research institutions, we hope to motivate them to seriously consider a career in research and development.

Several Alumni of NITK have come together to start Surathkal Innovation Challenge (SIC), which evaluates innovative projects developed by students, gives seed grants for completion of prototypes and also links students to possible industries for transfer of technology. The annual convention of the Karnataka State Council for Science and Technology (KSCST) was held in NITK in the year 2009. Several innovative ideas of our students were presented in this convention and a few were able to get funding from this agency as well.

Under the National Mission on ICT by the Government of India, NITK is the only NIT participating in the National Project on Virtual Laboratory. Under this project, several state of the art laboratories are being developed which will support a user to login and conduct experiments sitting in his/ her college remotely. Several faculty members have taken active interest in this and are in the process of designing experiments so that students from universities all over the country can benefit. NITK has

been a regular participant and has a good record in the BAJA competition supported by the Society of Automotive Engineers (SAE) in which student teams have to design All Terrain Vehicles which are pitted against each other. NITK students have also participated in the Hampi conservation project `Digital Hampi' where they have recreated the grandeur and beauty of the ancient Vijaynagar Empire using virtual reality. NITK is also establishing a Centre for Disaster Communication using Amateur Radio (HAM) under the auspices of the Centre of Excellence in Disaster Risk Reduction.

NITK has been attracting the top 2% of AIEEE rank holders consistently since 2003 (since the inception of this competitive examination) and thus having some of the brightest and best of young Indian talent. We will endeavor to create more opportunities for our students to show their talent, ability and innovation capability by employing the resources provided to us by this project. To enhance Alumni interaction and networking, a position of Dean (Alumni Affairs) will be created to coordinate all such interactions for mutual benefits. Many B. Tech students have already availed opportunities of students exchange programs with our MOU partners. More such programs are being offered to develop research interest among UG students.

2. 8 Action Plan for Collaborating with Indian and Foreign Institutions in Academic and Research Areas through MOUs

NITK has signed several MOUs with national and international institutes in the recent past. Several joint activities involving faculty and student exchange, joint research work are in progress. A brief account of some of the activities carried out in the past two months include:

A MOU has been signed with Dublin City University (DCU), Ireland this year. Several faculty members have visited this university for the purpose of research interaction and a post graduate student is currently working there conducting research work of interest to DCU and NITK. More such initiatives are being planned.

Ngee Ann polytechnic, Singapore will be sending about twenty five students of Computer and Information Sciences to spend six weeks in India as part of their exposure to different cultures, economies and industry. Several joint research papers, text book chapters involving faculty of Ngee Ann polytechnic have been published. Several initiatives for joint R&D programs are being explored.

NITK intends to enhance the research potential, research projects and research publications of its faculty, research scholars and students; through national and international collaborations with institutes of higher learning, R&D laboratories, industries etc.

- National and international collaborations with academic and research institutions are initiated at three levels namely (i) faculty level (ii) Department level and (iii) Institute level.
- Institute level collaborations are more of a generic nature covering student exchanges (which include courses to be taken by NITK students in those universities, student projects/dissertations under joint guidance etc.), student training/internships, exchange of

faculty and research scholars, submitting joint research proposals to potential sponsors, joint organization of international seminars and conferences and other mutually beneficial activities.

- Interactions in preparation and evaluation of B. Tech and M. Tech projects; and PhD dissertations.
- NITK academic regulations allows for its students to transfer credits earned in other institutions, both in India and abroad.
- Faculty level and department level collaborations can be more specific to the topics of research of mutual interest. Details of implementation of any particular cooperation activity resulting from the main MOU signed between NITK and other institutions, shall be discussed in detail between the concerned parties (faculty/depts./others) as and when required, and will be outlined in a supplementary agreement between the institutions.
- Faculty secondment to MOU institutions.
- Faculty from outside universities (MOU institutions) can offer courses at NITK.
- NITK also looks forward for opportunities for research interactions for its faculty in institutions with which it as signed an MOU. The period of such interactions can typically vary from 1-2 months, and also upto 1 year depending on the type of interaction.
- Faculty/researchers of MOU institutions can also be nominated to the Research Advisory Board (RAB) of NITK. RAB provides policy directions for research activities in the institute.
- Collaborations to set up research centres at NITK.
- The general procedure for entering into an MOU with any institution in India or abroad starts with initiation of simple research activities or joint workshops etc. by any department of NITK with other Institutions intending to have MOU and after it sort of matures with better understanding of each other, further to the next step of signing an MOU and continue such joint activities more rigorously thereafter and also expand it to other departments of NITK.

2.9 Training Need Analysis and Faculty Development Plan

The Training Needs Analysis has been a regular activity annually undertaken by the Institute. About 80 faculty members have been sent abroad for research interactions with funding from TEQIP-I which had been facilitated by the Training Needs Analysis conducted. An extensive Training Needs Analysis was also conducted for the present academic year. The format for the Training Needs Analysis as detailed in the Project Implementation Plan was circulated to all departments. Simultaneously the

heads of the departments were requested to individually speak to their faculty, technicians, administrative and finance staff and the support staff to identify their training needs. This interaction was intended to throw light on the requirements of the faculty and technical, administrative and support staff in terms of their achievements and necessities to enhance their teaching and research effectiveness and productivity. The department heads were then requested to administer the Training Needs Analysis format to their faculty and support staff. The completed Training Needs Analysis formats were then compiled at the Institution level. This compilation resulted in a comprehensive Training Needs Analysis for the Institution. The Institution level training plan for the faculty and staff was then prepared. The Training Plan consisted of the Basic and Advanced Pedagogical training as well as domain specific training.

A Bar Chart showing the various activities and the time frame is given in **Figure – 3**.

2.10 Relevance and Coherence of IDP with National and Industrial/Economic Development Plan

Education gets the maximum attention under the eleventh Five Year Plan (2007-12). Though there have been expansions in terms of number of educational institutions, especially in higher and technical education, it is evident that the education system is under stress to provide a sufficient volume of skilled human power, which is equipped with the required knowledge and technical skills to cater to the demands of the economy. The accelerated growth of our economy has already created shortages of high-quality technical manpower. Unlike the developed countries, where the young working age population is fast shrinking with higher dependency ratios, India has a demographic advantage with about 70% of the population below the age of 35 years. But this advantage can only be realized if we expand opportunities for our youth on a massive scale and in fields such as science, engineering and technology, apart from others. This is possible only if we initiate rapid expansion along with long overdue reforms in the higher, technical, and professional education sectors.

The above expansion needs to come about with a focused attention on quality manpower. Agencies such as NASSCOM have often stressed this aspect of Indian manpower. High quality manpower is possible with the availability of quality teachers. Therefore, training the teachers in Technical Education is also quite important. Many corporate companies have realized this need and have entered into the enterprise of training the teachers who are in technical education. Therefore even as we prioritize postgraduate education and research, it is equally important to keep in mind the quality of teachers and training imparted to them. The IDP precisely addresses these concerns. The

proposal takes into cognizance the national concerns, Industry concerns and the economic ones and attempts to incubate a well-planned scheme, which through the phase of TEQIP II, should yield rich dividends to the field of technology, to the economy and to the nation.

2.11 Project Implementation Arrangements

The proposal document has been prepared by studying meticulously the Institute needs, and various committees have been formed as recommended in the PIP, to execute the project successfully. The proposal has been prepared with the active participation of the entire faculty and staff of the Institute. The Institutional TEQIP Unit headed by a senior professor from engineering discipline with nine nodal officers for various activities like Procurement, Academic, Finance, Civil Works including Environmental Management, Faculty and Staff Development, Equity Assurance Plan, Industry-Institute Interaction, Monitoring and Evaluation including Disclosure Management and Institutional Management Capacity Enhancement along with necessary supporting staff has been already constituted. Two coordinators from each department were appointed to coordinate with the Institute TEQIP unit and several meetings were conducted in arriving at each department's requirements with respect to the project objectives. The proposals received from various departments were thoroughly scrutinized and priorities finalized. The proposal was finally vetted by a review committee constituted by the Director. The Board of Governors in its meeting held on 13th August, 2010 gave final approval to this proposal. NITK is already involved in the development of Finance Management Supporting System (FMSS) software for web based monitoring. Financial and Accounting Staff, A System Administrator, Data Entry Operators etc shall be appointed as recommended in the PIP as and when necessary.

2.12 Institutional Project Budget

Total budget allocation for the entire period of the project is to the tune of Rs. 14 crores for sub-component 1.2 as per the break up given below:

Table-2 (Table 34 of PIP)

Institutional Project Budget for Sub-Component 1.2

(Rs. In Crore)

Sl. No	Activities	Project Life Allocation	Financial year				
			2010-11	2011-12	2012-13	2013-14	2014-15
1	Infrastructure improvements for teaching, training and learning through:						
	(vi) Establishment of new laboratories for new and existing PG programmes, faculty research, etc. (40%)	5.60	0.56	2.8	2.24	-	-
	(vii) Updation of learning resources (2%)	0.28	0.028	0.084	0.084	0.084	-
	(viii) Procurement of furniture (5%)	0.70	0.07	0.35	0.28	-	-
	(ix) Modernization and strengthening of libraries and increasing access to knowledge resources (4%)	0.56	0.056	0.448	0.056	-	-
	(x) Refurbishment (Minor Civil Works) (3%)	0.42	0.042	0.21	0.168	-	-
2	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines (16%)	2.24	0.14	0.56	0.56	0.56	0.42
3	Enhancement of R&D and institutional consultancy activities (5%)	0.70	0.02	0.21	0.21	0.21	0.05
4	Faculty and Staff development for improved competence based on TNA (10%)	1.40	0.04	0.42	0.42	0.42	0.10
5	Enhanced interaction with Industry (5%)	0.70	0.02	0.21	0.21	0.21	0.05
6	Institutional Management Capacity enhancement (2%)	0.28	0.028	0.084	0.084	0.084	-

Sl. No	Activities	Project Life Allocation	Financial year				
			2010-11	2011-12	2012-13	2013-14	2014-15
7	Implementation of institutional reforms (1%)	0.14	-	0.07	0.07	-	-
8	Academic support for weak students (2%)	0.28	0.0175	0.07	0.07	0.07	0.0525
9	Incremental Operating Cost (5%)	0.70	0.02	0.21	0.21	0.21	0.05
TOTAL (100%)		14.00	1.0415 (7.4%)	5.726 (40.9%)	4.662 (33.3%)	1.848 (13.2%)	0.7225 (5.2%)

2.13 Project Targets under Sub-Component 1.2

Table-3 (Table 35 of PIP)

Project Targets for Institutions under Sub-Component 1.2

Sl. No.	Deliverables	Baseline (2009-10)	2014-15	Targets to be achieved
				By Project closing
1	Number of students registered for (a) Masters in Engineering programme (b) Doctoral Programme in Engineering	 472 28	 553 105	 600 120
2	Revenue from externally funded R&D projects and Consultancies in total revenue (Rs. in lakh) (does not include testing services)	38	180.38	200
3	Number of (a) Research publications in refereed journals • National journals • International journals (b) Patents obtained / filed (c) Books	 40 152 2 10	 18 285 9 46	 20 330 15 50
4	IRG as % of total recurring expenditure	24%	42.43%	45%

Sl. No.	Deliverables	Baseline (2009-10)	2014-15	Targets to be achieved
				By Project closing
5	Student credentials (a) Campus placement rate of • UG students • PG students (b) Average salary of placement package for (Rs. in lakh) • UG students • PG students	 89% 34% 5 4.5	 85% 61% 8.30 7.75	 90% 65% 8.50 8.00
6	Number of collaborative programmes with Industry	1	2	3
7	Accreditation Status (obtained and applied for)	100%	81.82%	100%
8	Vacancy position for faculty and staff	33%	40%	25%
9	Percentage of regular faculty with PhD in Engineering disciplines	63%	84%	90%
10	Any other (maximum three)			
(i)	Transition rate of ST Students	94%	95%	96%
(ii)	High quality undergraduates>75%	68%	72%	73%
(iii)	High quality postgraduates >75%	87%	90%	92%

2.14 Action Plan for Achievement of above Targets

Target 1: Increased enrollment in M Tech and Ph D programmes

Increase in enrollment in some of the M Tech programmes (e.g.: 3 each in Thermal Engineering and Manufacturing Engineering), Joint M Tech programmes (User Oriented Programmes) for Industry professionals where Institute has already entered into MOU, Part time M. Tech by the Mining Department. This intake will be over and above the GATE qualified Candidates. Ph D programmes jointly with Industries/ R&D Organizations (e.g.: CMTI Bangalore and NITK)/Academic institutions from India and abroad, Ph D programmes by deputing faculty members to Foreign universities where MOU has been already signed.

Target 2: Revenue from R&D and Consultancies

Since many MOUs with Industries and several multinational companies are now being actively pursued, it is expected that more sponsored research and consultancy projects will be undertaken by

faculty members of the Institute. Research Advisory Board (RAB) of NITK is actively involved in attracting funding from national funding agencies like DST, BRNS, DRDO, ISRO, ADA etc.,

Target 3: Increased Publications

With increase in sponsored research and industrial consultancy activities, the no. of publications and commercialization of products will be proportionately increased. Also recent training given to all faculty members in Intellectual Property Rights (IPR) Regulations and filing of patents, more applications for patents is expected on the anvil. Several initiatives taken by Science and Technology Entrepreneurship Park (STEP), Nirmithi Kendra, Surathkal Innovation Challenge (SIC), India Innovation centre etc, will further help to commercialize R&D projects.

Target 4: IRG %

With more student enrolment in M. Tech and PhD programmes and more industrial consultancy and sponsored research activities, the revenue is bound to increase. Revenue from Testing, Continuing Education Programmes are already on the increase for the current financial year.

Target 5: Co-authored publications

Activities pursued under various MOUs and starting of joint Ph D and M Tech programs with industries, research labs and world class universities will result in more joint publications with national and international authors.

Target 6: Student credentials

Remedial classes, professional skill development classes and value education activities, exposure to real life situation in industries, exchange programmes with national and international organizations will lead to better academic performance and placement rate. Special programmes conducted to enhance technical, professional, managerial and entrepreneurial skills will further help in receiving higher salary package.

Target 7: Collaborative programmes with Industries

Collaborative programmes/ twinning arrangement/sandwich programmes leading to joint M Tech / Ph D with industries where NITK has entered into MOU will substantial increase the no. of such collaborative programmes.

Target 8: Accreditation Status

As new programmes become eligible for accreditation, the same shall be applied for accreditation by NBA as per the revised procedures laid out by NBA.

Target 9: Vacancy position

Efforts are being taken to fill up all existing vacancies by a rigorous recruitment process in a phased manner within the next 2 years. Standing advertisement is hosted on the institute website to receive applications for faculty positions from meritorious candidates on a continuous basis.

Target 10: Ph D in Engineering

Already achieved the target. Also, while filling up faculty vacancies, efforts shall be made to recruit those with Doctoral Degrees wherever applicable.

Target 11: Performance of ST students

Programmes conducted in collaboration with CREST, Kozhikode will improve transition rate, pass rate and employability of ST students. Details of activities are provided in **Section 2.18**.

2.15 Action Plan to Ensure Sustainability after Completion of Project

Additional Revenue is expected to be generated from several sponsored research and industrial consultancy projects and from continuing education programs for professionals and faculty members. At present, all faculty members are provided with Rs. 3 lakhs funding under the scheme of Cumulative Professional Development Allowance (CPDA) to support research activities and to present and publish papers in International conferences/ journals. The institute is also committed to create 4 different funds as recommended in PIP namely Corpus fund, Faculty Development fund, Equipment replacement fund and Maintenance fund with due allocation from IRG to ensure sustainability after completion of the project. Since recruitment process for filling up all the existing vacancies is already in vogue, additional enrollment of M Tech and Ph D students will not pose any problem. To increase faculty contribution to research and to encourage students to participate in innovative projects, fiscal incentives shall be provided from IRG. Institute is also committed to implement all the reforms in accordance with the NIT statutes. NITK alumni are generously

contributing to the corpus fund of the institute and support several scholarship schemes for poor and meritorious students. Several companies have recently evinced interest in establishing professorial chairs in many engineering departments in the emerging areas of technology. All these measures ensure smooth transition as well as sound sustainability even after the four year project period.

2.16 Special Academic Achievements of the Institution:

Sl. No.	Item	Quantity
1	Publications	
	Journals	452
	Books/ Manuals	60
	Patents	2
2	Conferences organized in the last 3 years	70
3	Seminars and workshops organized	35
4	Collaboration with foreign Universities	14
5	Collaboration with Multi National Companies	16
6	Award and recognitions received by faculty	65

2.17 Action Plan for Organizing a Finishing School and for Improving Academic Performance of SC/ST/OBC and Academically Weak Students

Action Plan to improve the academic performance and employability of graduates belonging to the disadvantaged category, especially categories of SC/ST/OBC/WOMEN/PWD students is presented.

In order to improve the social and professional competence of students belonging to weaker sections, it is proposed to launch several mentoring programs in a phased manner.

Students' Phase in NITK – Surathkal, where special care is required:

Induction period – Expenditure Rs. 8 Lakhs:

- One (or) two weeks orientation programme by Centre for Research & Education for Social Transformation (CREST) experts for first semester students (SC/ST/OBC/PWD) during the period of induction. The Institute is in the process of entering into an MOU with CREST which was incubated by Indian Institute of Management, Kozhikode since 2002 with the support of Government of Kerala.

Orientations programme
- A bird-eye view of the courses (A fast track course).

- Preparedness for various challenges among the student community.
- Language studies

- Self/ personal defense programmes for women.

Transition period – Expenditure Rs. 6 Lakhs:

At the time of enrolment of students into their respective disciplines:

- Special counseling for students to cope up with the engineering discipline allotted by choice or by preference.
- One week/month preparatory course, from respective departments.
- Guidance in choosing the courses/electives/project work for successful completion of the programme.

End of third year (or) fifth semester – Expenditure Rs. 15 Lakhs:

- Organizing finishing schools - Personality development programmes/workshops for two weeks (or) one month to secure better placements.
- Guidance to pursue higher education in world class institutes.
- Coaching for foreign languages (French, German, Japanese)
- Entrepreneurship development programmes in association with STEP, NITK.

Civil Works – Expenditure Rs. 10 Lakhs:

- Refurbishment of existing seminar halls of Yogakshema Centre of NITK
- Renovation of common room for girl students/ women staffs.

A Bar Chart showing the various activities and the time frame is given in **Figure – 4**.

2.18 Procurement Plan for Goods, Civil Works

The detailed 18 months procurement plan for Good and Works including furniture and learning resources is given in **Table 4**.

Table 4 (Table 36 of PIP)

18-month Procurement Plan for Works and Goods (Equipments) for Sub-Component 1.2

Name of the Institution with location:	National Institute of Technology Karnataka Mangalore – 575025

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	Enhancing PG research activity and Doctoral programmes in **Chemical Engineering**	Particle Analyzer with Zetapotential	25 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug – Oct 2011	Nov 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	2		Flue gas Analyzer	6 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug – Oct 2011	Nov 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	3		Chromatography Accessories	10 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug – Oct 2011	Nov 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	4		High end Density & RI	5 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug – Oct 2011	Nov 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	5	Structural Engg. Laboratory for M.Tech.'s in - **(Civil Engineering)**	In-situ chloride ion migration test app.	9 lacs	NS / INS	Dec.2010	Feb.2011 9 lacs	May - 2011	July 2011	Sept. 2011	Nov 2011	Feb. 2012	April 2012
	6		Carbonation chamber / High temp. Muffle furnace/Other minor equip. and connecting cables.	11 lacs	NS / INS	Dec.2010	Feb.2011 11 lacs	May - 2011	July 2011	Sept. 2011	Nov 2011	Feb. 2012	April 2012
	7	Geotechnical Engg. Laboratory PG Studies in **(Civil Engineering)**	Geosynthetic Testing Equipment	12 lacs	NS / INS	Jan – March 2011	Feb.2011 12 lacs	May - 2011	July 2011	Sept. 2011	Nov 2011	Feb. 2012	April 2012
	8	Environmental Engg. PG studies in **Civil Engineering**	High pressure liquid chromatography	14 lacs	NS / INS	Jan – March 2011	Feb.2011 14 lacs	May - 2011	July 2011	Sept. 2011	Nov 2011	Feb. 2012	April 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3	9	Post graduates and Doctoral research activities of Materials Engineering, Manufacturing Engineering, thermal Engineering and allied research programs	1. GPC/Nanoparticle Analyser 2 .Glove Box 3. Advanced UV-Vis Spectrometer 4. Advanced Luminescence Spectrometer	45 lacs	NS / INS	Jan – March 2011	Mar – April 2011 60 lacs	May - July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	April – June 2012
4	10	**Enhancing PG studies in Computers Engineering Research on Image Processing**	Image Processing Development Toolkit	10 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
	11		Frame Grabber, Lens Kit	6 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
	12		Host Controller	3 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	13	**Research on Wireless Networks**	Real world traffic simulator	10 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
	14	**Research on Cluster Computing**	Intel-64 bit High Performance Computing Hardware, Intel Cluster Toolkit, Infiniband	8 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
	15		Mathwork's MATLAB Distributed Computing server	3 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
	16	**PG/PhD Research**	High end Workstations	5 lacs	NS / INS	Jan– Mar 2011	April 2011	May – June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
5	17	**Enhancing facilities for PG studies in Electronics and Communication Engineering**	Wireless training equipment	7 lacs	NS / INS	Aug 2011	Sept 2011	Sept 2011		Nov 2011	Dec 2011	Feb 2012	Aprl 2012
	18		Digital Logic Analyser	8 lacs	NS / INS	Aug 2011	Sept 2011	Sept 2011		Nov 2011	Dec 2011	Feb 2012	Aprl 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	19		High end workstations Updation of learning resources	20 lacs	NS / INS	April 2011	May 2011	May 2011		July 2011	Aug 2011	Oct 2011	Dec. 2011
	20		FPGA/DSP development boards	10 lacs	NS / INS	Aug 2011	Sept 2011	Sept 2011		Nov 2011	Dec 2011	Feb 2012	April 2012
6	21	PhD (research) and PG (project) work in Electrical and Electronics (i) Setting up of new PG LAB: Distribution system automation and Smart grid simulation Laboratory (ii) Modernisation of Power	Real time data acquisition system along with RTOS [Equipment]	9 lacs	Direct Contracting (DC) / Shopping	Jan 2011		Feb 2011		Mar 2011	April 2011	May 2011	Aug. 2011
	22		Distributed generation sources and grid interface controller modules	9 lacs	Direct Contracting (DC) / Shopping	April 2011		May 2011		June 2011	July 2011	Aug.2 011	Nov 2011
	23		Computational platforms [Hardware and software]	4 lacs	Direct Contracting (DC) / Shopping	Jan 2011		Feb 2011		Mar 2011	April 2011	May 2011	Aug 2011

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	24	Electronics Lab (iii) Upgrading PG LAB: Power System Laboratory	"Two units of One channel USB AE node with one channel parametric input, additional parametric inputs through a connector, one USB interface	2.75 lacs	Direct Contracting (DC) / Shopping	Jan 2011		Feb 2011		Mar 2011	April 2011	May 2011	Aug 2011
	25		UPS and support Battery system	9 lacs	Buy/ purchase through quotation	Jan. 2011		Feb. 2011		Marc h 2011	April 2011	May 2011	Aug. 2011
	26		Multi-media projector to upgrade PG labs.	1.8 lacs	Buy/ purchase through quotation	Jan. 2011		Feb. 2011		Marc h 2011	April 2011	May 2011	Aug. 2011
	27		Relay work benches	4 lacs	Direct Contracting or shopping	April 2012		May 2012		June 2012	July 2012	Aug.2 012	Nov. 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	28		Digital storage oscilloscope	1 lac	Direct contracting or shopping	Jan. 2011		March 2011		April 2011	May 2011	June 2011	Nov. 2011
	29		Intelligent power modules with firing circuit	1.5	Direct contracting or shopping	April 2011		May 2011		June 2011	July 2011	Aug. 2011	Nov. 2011
	30		DSP Controller Boards	1 lac	Direct contracting or shopping	Jan 2011		March 2011		April 2011	May 2011	June 2011	Nov. 2011
	31		Power semiconductor modules	1 lac	Direct contracting or shopping	Jan 2011		Feb 2011		Mar 2011	April 2011	May 2011	Nov. 2011
	32		Power conditioning systems	1 lac	Direct contracting or shopping	April 2012		May 2012		June 2012	July 2012	Aug 2012	Nov. 2012
7	33	For PG and Research work on material mechanical properties studies (tension,	Universal Testing Machine	24 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	34	compression and fatigue tests) of Materials Engineering, Manufacturing engineering, and Mechanical Engineering research and PG research in thermal engineering	High temperature furnace (1500^{0}C)	2 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	35		Combustion Analyzer: 4 channel Data Logger, Crank angle counter set, Pressure sensor with cable assembly, Fuel line pressure sensor relevant amplifier and PC based software.	19 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
8	36	PG and research studies - RS & GIS; Water resources and Engg management; Marine Structures of	Enhancement of RS & GIS Lab	2 lacs	NS / INS	Jan – March 2011	March -April– 2011	May - July 2011		Aug- Nov 2011	Dec 2011- Jan 2012	Jan- Mar 2012	April- June 2012
	37		Extension of Hydraulic measurement Lab	1 lacs	NS / INS	Jan – March 2011	March -April– 2011	May - July 2011		Aug- Nov 2011	Dec 2011 Jan12	Jan- Mar 2012	April- June 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	38	**Applied Mechanics and Hydraulic**	Extension of Wave Mechanics Lab	1 lacs	NS / INS	Jan – March 2011	March -April– 2011 2 lacs	May - July 2011		Aug-Nov 2011	Dec 2011-Jan 2012	Jan-Mar 2012	April-June 2012
	39		Wave Flume	40 lacs	NS / INS	Jan – March 2011	March -April– 2011 2 lacs	May - July 2011		Aug-Nov 2011	Dec 2011-Jan 2012	Jan-Mar 2012	April-June 2012
9	40	Enhancing Doctoral studies related to **Mining Engineering**-- to enhance research potential in Mine Environment, To enhance research potential in Rock mechanics	Frequency analyzer	7 lacs	NS / INS	Aug 2011	Oct 2011	Nov 2011		Dec 2011	Dec 2011	Jan 2012	Feb-Aprl 2012
	41		DGPS Receiver with accessories	19 lacs	NS / INS	Aug 2011	Oct 2011	Nov 2011		Dec 2011	Dec 2011	Jan 2012	Feb-Aprl 2012
	42		Ground penetration radar (GPR)	19 lacs	NS / INS	Aug 2011	Oct 2011	Nov 2011		Dec 2011	Dec 2011	Jan 2012	Feb-Aprl 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
10	43	Increasing research facilities of M. Tech programme in System Analysis and Computer Application	IP Camera with Remote Control	2.0 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Oct – Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	May– June 2012
	44		High End Desktop PC's	15 lacs		Jan – March 2011	March – April 2011	May – July 2011		Oct – Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	May– June 2012
	45		Upgradation of Old PC's	28 lacs	Purchase under buy-back option through Quotations	Jan – March 2011	March – April 2011	May – July 2011		Oct – Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
11	46	Doctoral studies in Materials Engineering	Photoluminescence Spectrometer	40 lacs	NS / INS	Jan – March 2011	April – 2011 40 lacs	May - June 2011		July 2011	Sept 2011	Nov 2011	Dec. 2011 -Feb 2012
12	47	Establishment of high performance computing LAB, Establishing Multimedia LAB	1.Super Server 6016GT –GF series 4U server 2.Power7 4-way (32 crores) based systems for multi-	5 lacs 20 lacs	NS / INS	May– 2011	June – 2011 25 lacs	July 2011		Sept. 2011	Sept 2011	Oct. 2011	Jan 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
		for strengthening PG and Research programmes in Information Technology	core optimizations 1. Multimedia workstations (iMAC) 2. Multimedia sensors with mote kit and camcorder	10 lacs 10 lacs									
13	48	Enhancing Computational facilities by Virtualization and High performance computing cluster for PG and Doctoral work	Back bone storage and servers and Blade servers	25 lacs	NS / INS	Jan – March 2011	April – 2011 25 lacs	May - June 2011		July 2011	Sept 2011	Nov 2011	Dec. 2011 -Mar 2012
	49		Scalable computing cluster	25 lacs	NS / INS	Jan – March 2011	April – 2011 25 lacs	May - June 2011		July 2011	Sept 2011	Nov 2011	Dec. 2011 -Mar 2012
14	50	PG and Doctoral research programs in **Metallurgy and**	Magnetron sputtering PVD unit	25 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	51	**Materials Engineering**	X-ray Fluorescence chemical analysis equipment	10 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	52		Micro-abrader	5 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
	53		Salt spray bath	5 lacs	NS / INS	Jan – March 2011	March – April 2011	May – July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	Aprl– June 2012
			Total	**632lacs**									

Table 4 (Table 36 of PIP)

18-month Procurement Plan for Works and Goods (Furniture) for Sub-Component 1.2

Name of the Institution with location:	National Institute of Technology Karnataka Mangalore – 575025

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	Upgradation of PG classrooms/Laboratories/ metrology lab of **Mechanical Engineering**	Lab Furniture	12 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
2	2	Upgradation of PG classrooms/Laboratories for PG programmes of **E & C disciplines**	Lab Furniture	3.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
3	3	Upgradation of PG classrooms/Laboratories for PG programmes of **E & E**	Lab Furniture	5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
4	4	Purchase of furniture for center for soft skill development / language laboratory	Lab Furniture	10.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
5	5	Upgradation of doctoral laboratories of materials engineering	Lab Furniture	7.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
6	6	Upgradation of PG classrooms/Laboratories for PG programmes of **Chemical Engineering**	Lab Furniture	5.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
7	7	Upgradation of Doctoral research Laboratories of **Mining engineering**	Lab Furniture	5.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
8	8	Upgradation of PG classrooms/Laboratories for PG programmes of Information Technology	Lab Furniture	3.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
9	9	Upgradation of PG classrooms/Laboratories for PG programmes of **Civil Engineering**	Lab Furniture	3 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
10	10	Furniture for Yogakshema Centre / Centre for soft Skill development	Lab Furniture	3.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
11	11	Up gradation of PG classrooms/Laboratories for PG programmes of **Applied Mechanics and Hydraulics**	Lab Furniture	2.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
12	12	Up gradation of PG classrooms/Laboratories for PG programmes of **Metallurgy and Material Engineering**	Lab Furniture	3 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
13	13	Up gradation of M. Tech classrooms/Laboratories for System Analysis and Computer Applications	Lab Furniture	2.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
14	14	Up gradation of PG classrooms/Laboratories for PG programmes of Computers Engineering	Lab Furniture	2.5 lacs	NS / INS	Jan – March 2011	April – May 2011	June 2011		July 2011	Sept 2011	Nov 2011	Feb 2012
			Total	**70 lacs**									

Table 4 (Table 36 of PIP)

18-month Procurement Plan for Works and Goods (Software and Learning Resources) for Sub-Component 1.2

Name of the Institution with location:	National Institute of Technology Karnataka, Mangalore – 575025

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	Enhancement of PG and Doctoral studies in Transportation Systems	Software –CUBE VOYAGER (Urban Transport Planning)	7.5 lacs	NS / INS	Dec.2010	Feb 2011 7.5 lacs	May - 2011		Sept. 2011	Nov 2011	Feb. 2012	April 2012
2	2	Enhancing Doctoral studies related to Mining Engineering	Arc software	7 lacs	NS / INS	Jan – 2011	Feb. 2011 7 lacs	March 2011		April 2011	April 2011	May 2011	
3	3	PG/PhD research – **computer** net work simulation	Qualnet	6 lacs	NS / INS	Jan-March 2011	April 2011 6 lacs	May-June 2011		July 2011	Sept. 2011	Nov. 2011	Feb. 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
4	4	Enhancement of PG and Doctoral studies in E & C Engg.	Submicron device design tools (TCAD Software)	7 lacs	NS / INS	Aug. 2011		Aug. 2011		Sept 2011	Sept 2011	Oct 2011	Dec. 2011
5	5	Enhancement of PG and Doctoral studies CNC machines through up gradation	CNC Diagnostics software	1.5	NS / INS	Jan-Mar 2011	Mar-Aprl-2011	May-Jul 2011		Aug-Nov.2011	Dec 2011-Jan 2012	Feb.-Mar. 2012	Aprl-Jun 2012
6	6	Enhancement of PG and Doctoral studies in E & E Engg,	AEwin light software licensed for 2 channel including USB – AE waveform	900 US$ (0.45 Rs.)	Direct Contract	April 2011		May 2011		June 2011	July 2011	Aug 2011	Nov. 2011
			Total	**30.0 lacs**									

Table 4 (Table 36 of PIP)

18-month Procurement Plan for Works and Goods (Library) for Sub-Component 1.2

Name of the Institution with location:	National Institute of Technology Karnataka Mangalore 575025

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	Enhance E-journal subscriptions	E-journal	5 lacs	International database Vendors	Jan – March 2011	April – May 2011	May July 2011		Oct – Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	April – June 2012
2	2	Reference materials are to be scanned and documented	Automatic Book scanner	15 lacs	NS / INS	Jan – March 2011	April – May 2011 15 lacs	May July 2011		Aug – Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	April – June 2012
3	3	The color printer-cum-copier is required for preparation project reports and research proposals	color printer-cum-copier	10 lacs	NS / INS	Jan – March 2011	April – May 2011 10 lacs	May July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	April – June 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
4	4	**PG and Doctoral studies of various engineering departments**	MATLAB full package	6 lacs	NS / INS	Jan – March 2011	April – May 2011 6 lacs	May July 2011		Aug– Nov 2011	Dec 2011 – Jan 2012	Feb – Mar 2012	April – June 2012
5	5	**Enhancement of PG and Doctoral studies in Transportation Systems Engg. Of Civil Engg**	Software– TRANSCAD (GIS based transport software)	5.5 lacs	NS / INS	Dec. 2010	Feb 2011 - 5.5 lacs	May - 2011		Sept. 2011	Nov 2011	Feb. 2012	April 2012
6	6	Setting up of soft skills and language laboratory for PG education	Software for Language Lab	5 lacs	NS / INS	Dec 2010	March 2011	April 2011		May 2011	June 2011	July 2011	Sept 2011

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
7	7	Enhancing Doctoral studies related to Mining Engineering	FE FLOW software	5 lacs	NS / INS	Jan – 2011	Feb 2011 5 lacs	March 2011		April 2011	April 2011	May 2011	Aug. 2011
8	8	PG research and Doctoral studies	Surface water modeling software	4.5	NS / INS	Jan 2011-1,2,3	Jan.2011-3,4	5,6,7		10,11	Dec.2011-Jan.2012	Jan.2012-2,3	Jan2012-4,5,6
			Total	**56 lacs**									

Table 4 (Table 36 of PIP)

18-month Procurement Plan for Works and Goods (CIVIL WORKS) for Sub-Component 1.2

Name of the Institution with location:	National Institute of Technology Karnataka Mangalore 575025

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	Refurbishment PG Labs of **Computer Engineering**	Civil work	0.1 lakh	NS / INS	Jan – March 2011	April – May 2011 0.1lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
2	2	Refurbishment of PG labs of **Civil Engg.**	Civil Work	4 lacs	NS / INS	Jan – March 2011	April – May 2011 4 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
3	3	Refurbishment of PG labs soft skill and language lab.	Civil Work	1.5 lacs	NS / INS	Jan – March 2011	April – May 2011 1.5 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
4	4	Refurbishment of PG labs of **Chemical Engineering**	Civil Work	5 lacs	NS / INS	Jan – March 2011	April – May 2011 5 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
5	5	Refurbishment of PG labs of **Information Technology**	Civil Work	2.5 lacs	NS / INS	Jan – March 2011	April – May 2011 2.5 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
6	6	Refurbishment of PG labs of **Applied Mechanics and Hydraulics**	Extension of wave mechanics lab	1 lacs	NS / INS	Jan – March 2011	April – May 2011 1 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
7	7	Upgradation for PG classrooms/Laboratories /Metrology laboratory **Mechanical Engineering**	Civil Work	7 lacs	NS / INS	Jan – March 2011	April – May 2011 7 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
8	8	Setting up of PG lab **Electrical and Electronics Engineering**	Civil Work	1 lacs	NS / INS	Jan – March 2011	April – May 2011 1 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012

Package No.	Sl. No.	Activities	Description of Works/Goods	Estimated Cost (Rs.)	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value)	Preparation of Bid Document (Date)	Receipt of Bank's No Objection to Bidding Document (Date)	Bids		Contract Award (Date/ Value)	Date of Completion of Contract
										Invitation (Date)	Opening (Date)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
9	9	**Refurbishment of materials labs for Doctoral studies in materials engineering**	Civil work	5 lacs	NS / INS	Jan – March 2011	April – May 2011 5 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
10	10	Refurbishment of Yogakshema Center	Civil work	10 lacs	NS / INS	Jan – March 2011	April – May 2011 10 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
11	11	Refurbishment of center for Professional Skills Development labs	Civil work	8 lacs	NS / INS	Jan – March 2011	April – May 2011 8 lacs	June 2011		July 2011	Sept 2011	Nov 2011	Dec-2011 to April 2012
			Total	**45.1 lacs**									

Figure 1: Bar Chart Showing Activities for Scaling-up Enrolment in M. Tech/Ph D

Sl. No	Key Activities	Project Months															
		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40-42	43-45	46-48
1.	**Appointment of RA / TA**																
	Advertisement for TA / RA Positions	X				X				X				X			
	Selection of TA / RA		X				X				X				X		
	Scholarships awarded		X				X				X				X		
	Graduation of TA / RA												X				
2.	**International Co-operation**																
	Contacting Scientists / Academics in International Universities / R&D organizations	X		X		X		X		X		X		X		X	
	Visits of Faculty for Research Interaction		X		X		X		X		X		X		X		X
	Organizing Joint Seminars / Conferences with International Co-Operation			X				X				X				X	
	Selection of students for short visits		X				X				X				X		
	Assessment of work done by students during their stay			X				X				X				X	

3.	**Strengthening of Research Linkages**																
	Planning Joint Projects with International Experts	x	x	x	x	x	x	x									
	Recruitment of Post doctoral Research Scholars			x	x	x	x	x	x								
	Monitoring the execution of these projects		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4.	**Enhancement of collaboration with Industry**																
	Contacting senior industry personnel for establishing industry linkages	x	x	x	x	x	x	x									
	Discussion with industry personnel for finalize joint R&D Projects/training programs		x	x	x	x	x	x	x								
	Selection of students to work on joint R&D Projects		x	x	x	x	x	x	x	x	x						
	Monitoring of work done by students		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Transfer of Technology to Industry for product formulation							x	x	x	x	x	x	x	x	x	x

Figure 2: Bar Chart Showing Activities to Enhance Industry Institute Interaction

Sl. No	Key Activities	Project Months															
		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40-42	43-45	46-48
1	Preparation of Presentation materials for industrial visits																
2	Industrial visits, presentations, discussions and meetings																
3	Initiation of joint research works, laboratories setting, joint projects of UG, PG and Ph.D students																
4	Increasing the number of industries for campus placement and consultancy work																
5	Signing of MOUs between NITK and industries for industry sponsored professorial chair at NITK																
6	Exploring the possibility of joint PG programmes by NITK and industries for mutual benefit as part of MOU																

Figure 3: Bar Chart Showing Activities for Faculty Development

Sl. No	Key Activities	Project Months					
		1-3	4-6	7-9	10-12	13-15	16-18
1	Training of faculty in Basic Pedagogy						
2	Training of faculty in Advanced Pedagogy						
3	Subject/domain knowledge enhancement for faculty						
4	Training of Technical & Support Staff in functional areas						
5	Training of Administrative Staff						

Figure 4: Bar Chart Showing Activities for Equity Assurance Implementation

Sl. No	Key Activities	Project Months															
		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40-42	43-45	46-48
1	Orientation Programme																
2	Special Coaching																
3	Finishing Schools																
4	Entrepreneurship Development Programmes																
5	Training for Soft Skill Development 1. Foreign Languages 2. Communication Skills																
6	Self Defence Programmes for girl students and women																
7	Civil Works: Refurbishment of Yogakshema Centre																

Annexure – I

Proof of Accreditation Award

NATIONAL BOARD OF ACCREDITATION
NBCC Place, East Tower, 4th Floor, Bhisham Pitamah Marg,
Pragati Vihar, New Delhi-110 003
Tel: +91 11 2436 0620, 2436 0654 Telefax: +91 11 2436 0682

NATIONAL BOARD of ACCREDITATION

File No. 25-90/2010-NBA **Dated: December 18, 2014**

To,

The Director
National Institute of Technology Karnataka
Surathkal, Srinivasnagar,
Mangalore-575025,
Karnataka

Subject: Accreditation status of programmes applied National Institute of Technology Karnataka, Manglore, Srinivasnagar Karanataka- 575025.

Sir,

This has reference to your applications dated 22/10/2013 in **Tier-I format** seeking accreditation by National Board of Accreditation to the UG Engineering programmes offered by National Institute of Technology Karnataka, Surathkal, Mangalore-575025, Karnataka.

2. Two Expert Teams conducted an on-site evaluation of the programmes during 22nd -24th August, 2014 and 19th-21st September 2014. The reports submitted by the Expert Teams were considered by the concerned Committees constituted for the purpose in NBA. The competent authority has approved the following accreditation status to the programmes as given in the table below:

Sl. No.	Name of the Programme (UG)	Basis of Evaluation	Accreditation Status	Period of validity w.e.f. 01-07-2014
(1)	(2)	(3)	(4)	(5)
1.	Chemical Engineering	Tier I Document	Accredited	5 years
2.	Civil Engineering			
3.	Electronics & Communication Engineering			
4.	Electrical & Electronics Engineering			
5.	Mechanical Engineering			
6.	Computer Engineering			
7.	Information Technology			
8.	Metallurgical & Material Engineering			
9.	Mining Engineering			

Annexure – II

List of BOG members of NITK

1. **Ms. Vanitha Narayanan (Chairperson)**
2. **Additional secretary (MHRD)**
3. **Joint secretary (MHRD)**
4. **Dr. Badekai Ramachandra Bhat (Professor & HOD, Department of Chemistry)**
5. **Mr. K Vinaya Kumar (Associate Professor, Department of CSE)**
6. **Prof. Swapan Bhattacharya (Director, NITK)**
7. **Shri K.Ravindranath (Registrar, NITK) (Secretary)**

Annexure – III
Action Plan

Technical Education Quality Improvement Programme (TEQIP) Phase-II
Action Planning for July 2014 to December 2016

Name of the Institution: National Institue of Technology Karnataka, Surathkal **Sub-component : 1.2**

Financial figures to be furnished in Rs. Lakh

Activities	Sub-Activities	Jul-Sep 2014		Oct-Dec 2014		Jan-Mar 2015		Apr-Jun 2015		Jul-Sep 2015		Oct-Dec 2015		Jan-Mar 2016		Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		Total	
		Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physical Target (Nos.)	Financial Estimate (Rs Lakh)	Physiacl Target (Nos.)	Financial Estimate (Rs Lakh)
Procurement	ICT enabled learning, related softwares & hardware.																					0	0.00
	New laboratory for new PG programs																					0	0.00
	New laboratory for existing PG programs																					0	0.00
	Library i.e. books,e-books, journals, e-journals course specific softwares																					0	0.00
	membership of online journals & consortium																					0	0.00
	Digital/Virtual learning																					0	0.00
	Equipments for Institutional TEQIP unit.																					0	0.00
	Civil Work																					0	0.00
	Others																					0	0.00
	Sub-total	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Assistantships	Masters students enrolled with TEQIP teaching assistantship		7.20		7.20		7.20		7.20													0	28.80
	PhD students enrolled with TEQIP research assistantship		3.36		3.56		3.36		3.36		3.36		3.76		3.36		3.36		3.36		3.76	0	34.60
	Others																					0	0.00
	Sub-total	0	10.56	0	10.76	0	10.56	0	10.56	0	3.36	0	3.76	0	3.36	0	3.36	0	3.36	0	3.76	0	63.40
R&D	Research projects taken by UG /PG students																					0	0.00
	Seed grants for research by faculty																					0	0.00
	Research publications in engineering in refereed journals																					0	0.00
	Organising conferences on R&D topics	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	10	25.00
	Patenting of technologies																					0	0.00
	Others																					0	0.00
	Sub-total	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	10	25.00
FSD	Enrollment of faculty with BTech for MTech degree																					0	0.00
	Enrollment of faculty with MTech for PhD degree																					0	0.00
	Faculty training in subject domain			24	115.00			24	115.00			24	115.00			24	115.00			24	115.00	120	575.00
	Faculty training in pedagogy			1	4.00			1	4.00	1	4.00	1	4.00			1	4.00	1	4.00	1	4.00	7	28.00
	Organising inhouse training workshops in teaching/research subjects																					0	0.00
	Paticipation of faculty in outstation seminar/ conferences/ workshops etc	10	7.00	30	21.00	10	7.00	20	14.00	15	10.50	10	7.00	10	7.00	20	14.00	15	10.50	10	7.00	150	105.00
	Training/Development of technial/support staff			1	2.00			2	4.00	2	4.00	1	2.00			2	4.00	1	2.00	1	2.00	10	20.00
	Others																					0	0.00
	Sub-total	10	7.00	56	142.00	10	7.00	47	137.00	18	18.50	36	128.00	10	7.00	47	137.00	17	16.50	36	128.00	287	728.00

18/07/14 M. Saipant 18/7/14 P. Bhattacharya 18/7/14 Page #1 of 2

Financial figures to be furnished in Rs. Lakh

Activities	Sub-Activities	Jul-Sep 2014		Oct-Dec 2014		Jan-Mar 2015		Apr-Jun 2015		Jul-Sep 2015		Oct-Dec 2015		Jan-Mar 2016		Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		Total	
		Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physiacl Target (Nos.)	Financial Estimate (Rs. Lakh)
Industry Institute Interactions	Collaborative academic programs: BTech/MTech/PhD with industry																					0	0.00
	Short term workshops with industry			2	4.00	1	2.00	2	4.00	2	4.00	1	2.00	2	4.00	2	4.00	2	4.00	1	2.00	15	30.00
	Academic networking with industry/research institutions including industry-exposure to teachers and																					0	0.00
	Campus placements of graduates (UG & PG)																					0	0.00
	Students internship at industry																					0	0.00
	Joint activities with industry																					0	0.00
	Others																					0	0.00
	Sub-total	0	0.00	2	4.00	1	2.00	2	4.00	2	4.00	1	2.00	2	4.00	2	4.00	2	4.00	1	2.00	15	30.00
Capacity development	Exposure/Training of senior teaching/non-teaching members in management capacity development			4	10.00			4	10.00			2	5.00			4	10.00	4	10.00	2	5.00	20	50.00
	Others																					0	0.00
	Sub-total	0	0.00	4	10.00	0	0.00	4	10.00	0	0.00	2	5.00	0	0.00	4	10.00	4	10.00	2	5.00	20	50.00
Reforms	Fee for NBA accreditation									5	13.00											5	13.00
	Activities / Innovations aiming at improvement in quality of education																					0	0.00
	Others																					0	0.00
	Sub-total	0	0.00	0	0.00	0	0.00	0	0.00	5	13.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	13.00
Academic support for weak students	Support to academically weak students to enhancement their knowledge and skills	2	18.00	5	7.50			7	37.5	1	3.00	5	7.50			7	37.5	1	3.00	5	6.60	33	120.60
	Others																					0	0.00
	Sub-total	2	18.00	5	7.50	0	0.00	7	37.50	1	3.00	5	7.50	0	0.00	7	37.50	1	3.00	5	6.60	33	120.60
Incremental ope	IOC		15.00		15.00		15.00		15.00		15.00		15.00		15.00		15.00		15.00		15.00	0	150.00
	GRAND TOTAL	13	53.06	68.00	191.76	12.00	37.06	61.00	216.56	27.00	59.36	45.00	163.76	13.00	31.86	61.00	209.36	25.00	54.36	45.00	162.86	370	1180.00

18/07/14 N. Sripat 18/7/14 S. Bhattacharya 18/7/14

Annexure – IV

Project Implementation Memos

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
P.O. SRINIVASNAGAR-575 025, D.K.

No.TEQIP II/Estt./2010/B1 Date: 1-7-2010

OFFICIAL MEMORANDUM

Sub: Appointment of Coordinator for implementation of TEQIP-II – Dr.Prasad Krishna, Professor, Dept. of Mechanical Engg. – Orders passed.

Ref: 1) Advertisement of MHRD, New Delhi order in the Newspaper dated 30.6.2010.
2) O.N. of the Director dated 30.6.2010.

As per the GOI, MHRD advertisement, the Ministry has launched the TEQIP-II and invited proposals for participation from Institutions under several categories including from Centrally funded Institutions.

Under the above circumstances and as approved by the Director, Dr. Prasad Krishna, Professor, Dept. of Mechanical Engg. is appointed as the Coordinator, TEQIP-II w.e.f. 1st July 2010 until further orders. He is requested to coordinate and prepare proposals for implementation of TEQIP-II as per the requirements of the scheme in NITK.

REGISTRAR

File
7/7/10

To:

Dr. Prasad Krishna,
Professor,
Dept. of Mechanical Engg.,
NITK, Surathkal.

Copy to: Table of Director.
Copy to: TEQIP Office.
Copy to: All Deans, Registrar, Dy. Registrar (Academic), Dy. Registrar (A/cs). Sr. Internal Audit Officer.
Copy to: All Supdts.
Copy to: All HODs.

Annexure – V

Institutional Governance Review

A self review of the Institutional governance has been conducted at NITK and the report of the same is enclosed. The report has been prepared in line with the **Annexure 4** (Institutional Governance Review Template) of **TEQIP Good Practice Guide for Governing Bodies, December 2012**.

The following scale has been used for the assessment (as given in **TEQIP Good Practice Guide for Governing Bodies, December 2012**) .

Assessment scale and descriptors

The Institutional Governance Review Template is a tool based on the TEQIP Good Practice Guide for Governing Bodies to assist institutions as they carry out their self-reviews. Institutions may choose to use this, or other tools to review their governance practice.	
Assessment Scale	**Details**
1	Clear evidence of very good practice in the quality and standards achieved (Assessment identifies clear supporting evidence for at least 75% of the relevant practices set out in the good practice guide for Governing Bodies
2	Some evidence of very good practice in the quality and standards achieved (Assessment identifies clear supporting evidence for at least 50% of the relevant practices set out in the good practice guide for Governing Bodies
3	Not in place (Institutions may specify the expected date of completion if there are concrete plans in place for implementation. Also, specify if there are any practices in the Good practices in the Good Practice Guide for Governing Bodies not yet relevant to your institution, or which are the responsibility of some other body. It is anticipant that these would be few in number.)

NITK GOVERNANCE REVIEW

A: PRIMARY ACCOUNTABILITIES			
PRACTISE	**SELF REVIEW**	**SUPPORTING EVIDENCE**	**DEVELOPMENT PLAN**
Has the Governing Body approved the institutional strategic vision, mission and plan-identifying a clear development path for the institution through its long term business plans and annual budgets?	Yes **Assessment Scale = 1** Draft was placed before the BOG in 19th BOG meeting (29-03-2009) After the revision and approval from the senate, it was approved in 23rd BOG meeting held on 15-03-2010.	• A copy of the NITK strategic plan is available with all the Deans and Heads of Department. • Strategic plan is also available on the NITK website.	• Regular monitoring of the progress as proposed in the strategic plan document is carried out by the Director during the meeting of Deans/HoDs and reported to BOG.
Has the Governing Body ensures the establishment and monitoring of proper, effective and efficient systems of control and accountability to ensure financial sustainability (including financial and operational controls, risk assessment and management, clear procedures for managing physical and human	Yes **Assessment Scale = 1** Governing body discusses and approves the annual budget every year. The institute does not face financial / procurement risks because it receives plan and non-plan grants from the	• Minutes of the BOG and Finance Committee (FC), B&W Committee are available on the NITK website	• The institute has taken several steps to strengthen Internal Revenue Generation (IRG) by encouraging faculty members to take up Consultancy assignments with industry and Sponsored Research/Infrastructure development projects from funding agencies.

resources.)	Govt. of India.		
Is the Governing Body monitoring institutional performance and quality assurance arrangements? Are these benchmarked against other institutions (including accreditations, and alignment with national and international quality assurance systems) to show that they are broadly keeping pace with the institution they would regard as their peers and competitors to ensure and enhance institutional reputation?	Yes **Assessment Scale = 1** The institution is ranked by various agencies like India Today, Week and Outlook All programmes are accredited by National Board of Accreditation (NBA).	• Copy of the accreditation award by the NBA is available on the NITK website.	• All 9 UG programs have been accredited under Tier – I by NBA with the maximum validity of 5 years. • Hence all Bachelor programs are equivalent to that of Washington Accord signatories until 2019. • Fresh Applications for NBA accreditation along with Self Assessment Reports (SAR) for 18 PG programs have been uploaded to the NBA Website. Waiting for visit of the Assessment Team.
Has the Governing Body put in place suitable arrangements for monitoring the head of the institution's performance?	Yes **Assessment Scale = 2**	• The performance is monitored through feedback from Alumni and other Board members periodically. • Feedback is periodically obtained from students through exit surveys at the time of the completion of the course work.	

B: OPENNESS & TRANSPARENCY IN THE OPERATION OF GOVERNING BODIES			
PRACTISE	**SELF REVIEW**	**SUPPORTING EVIDENCE**	**DEVELOPMENT PLAN**
Does the Governing Body publish an annual report on institutional performance?	Yes **Assessment Scale = 1** Annual report listing the performance of the institute is published. This contains information about Student Admission, R&D Projects sanctioned, Testing & Consultancy activities, Research Papers Published, Audited balance sheet etc.	• Copies of the annual reports are available in the institute.	• N/A
Does the Governing Body maintain, and publicly disclose a register of interest of members of its governing body?	No **Assessment Scale = 2**	• As a practice in India, the register of interest is not maintained.	It is proposed to obtain the Register of Interest signed by each BOG member in the next Board meeting.
Is the Governing Body conducted in an open manner, and does it provide as much information as possible to students, faculty, the general public and potential employers on all aspects of institutional activity related to	Yes **Assessment Scale = 1** Proceedings of the BOG meetings are uploaded on the institute website. A hard copy of the minutes is also kept	• Proceedings of the BOG meetings are uploaded on the institute website. A hard copy of the minutes is also kept in the institute library	

academic performance, finance and management?	in the institute library		

C: KEY ATTRIBUTES OF GOVERNING BODIES			
PRACTISE	**SELF REVIEW**	**SUPPORTING EVIDENCE**	**DEVELOPMENT PLAN**
Are the size, skills, competences and experiences of the Governing Body such that it is able to carry out its primary accountabilities effectively and efficiently, and ensure the confidence of its stakeholders and constituents?	Yes. **Assessment Scale = 1** The governing body comprises of members with administrative, financial and techno-commercial backgrounds. The current chairperson of the governing body is a Managing Director of IBM (India). In addition, it has representation from the MHRD, state government and NIT Senate.	• Profile of the governing body members is available on the institute website	N/A (The board members are nominated by the MHRD)
Are the recruitment processes and procedures for governing body members rigorous and transparent?	Yes **Assessment Scale = 1** The board members are nominated by the MHRD		N/A

Does the Governing Body have actively involved independent members and is the institution free from direct political interference to ensure academic freedom and focus on long-term educational objectives?	Yes. There is no political interference.		
Are the role and responsibilities of the Chair of the Governing Body, the Head of the Institution and the Member Secretary serving the governing body clearly stated?	Yes **Assessment Scale = 1** As per the statutes of the NIT act , 2007	• A copy of the statutes and NIT act are available on the institute website.	The Act defines clearly the role of chairperson and Director.
Does the Governing Body meet regularly? Is there clear evidence that members of the governing body attend regularly and participate actively?	Yes. **Assessment Scale = 1**	• Minutes of BOG meeting are uploaded on the institute website.	---

D: EFFECTIVENESS AND PERFORMANCE REVIEW OF GOVERNING BODIES			
PRACTISE	**SELF REVIEW**	**SUPPORTING EVIDENCE**	**DEVELOPMENT PLAN**
Does the Governing Body keep their effectiveness under regular review and in reviewing it's performance, reflect on the performance of the institution as a whole in meeting its long-term	Yes **Assessment Scale = 2** The implementation of the strategic plan		

strategic objectives and its short-term indicators of performance/success?	is regularly monitored.		
Does the Governing Body ensure that new members are properly inducted, and existing members receive opportunities for further development as deemed necessary?	N/A Governing body members are nominated by the MHRD.	N/A	N/A

E :REGULATORY COMPLIANCE

PRACTISE	SELF REVIEW	SUPPORTING EVIDENCE	DEVELOPMENT PLAN
Does the Governing Body ensure regulatory compliance and subject to this, take all final decisions on matters of fundamental concern to the institution. Does the regulatory compliance include demonstrating compliance with the 'not-for-profit' purpose of education institutions? Has there been accreditation and /or external quality assurance by a national or professional body? If so, give details: name, status of current accreditation etc.	Yes **Assessment Scale = 1** All decisions are taken in compliance to the statutes of NIT act 2007 N/A (as NITs are Institutions of National Importance established by an act of parliament.) Yes. All 9 UG programmes have been accredited under Tier-I by NBA. The self assessment reports (SAR) for 18 PG programmes have been uploaded. The Institute is awaiting the visit of the assessment teams.	• Copy of statutes of NIT act 2007 is given • All educational programmes of the institute are approved by the MHRD. • NITs are autonomous institutions under the MHRD. • The fee structure is governed by the fee committee appointed by the Central Government. • All admissions are governed by the MHRD. • All recruitments are governed by the recruitment rules notified by the MHRD.	•