TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP) (PHASE-II)

REVISED INSTITUTIONAL DEVELOPMENT PROPOSAL

for

Sub- Component 1.2: Scaling-up Postgraduate Education and Demand-driven Research & Development and Innovation

Submitted by

NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 620 015

JULY 2015

INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity

- Name of the Institution: **NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**
- Is the institution AICTE approved? : **Yes**/~~No~~
- Type of Institution : **Govt. funded**~~/ Govt. aided/Private unaided / Autonomous / other~~
- Status of Institution : ~~Autonomous Institute as declared by University / Non-Autonomous / Deemed University / Constituent College/~~**Centrally funded Institution**
- Names of Head of Institution and Project Nodal Officers

Head & Nodal Officer	Name	Phone number	Mobile Number	Fax Number	E-mail Address
Head of the Institution	**Dr. S.SUNDARRAJAN**	0431-2503001	9442512370	0431-2500133	sundar@nitt.edu
Project Nodal Officers for					
TEQIP-II Advisor	**Dr. G. SWAMINATHAN**	0431-2503052	9486001166	0431-2500133	gs@nitt.edu
TEQIP-II Coordinator	**Dr. T.K.RADHAKRISHNAN**	0431-2503104	9486001128	0431-2500133	radha@nitt.edu teqip@nitt.edu
Additional Coordinator	**Dr. N. SIVAKUMARAN**	0431-2503351	9486001137	0431-2500133	nsk@nitt.edu
Academic Activities	**Dr. SISHAJ P SIMON**	0431-2503265	9486001142	0431-2500133	sishajpsimon@nitt.edu
Procurement	**Dr. V. SENTHILKUMAR**	0431-2503519	9486001113	0431-2500133	vskumar@nitt.edu
Financial Aspects	**Dr.K.R.BALASUBRAMANIAM**	0431-2503419	9486001181	0431-2500133	krbala@nitt.edu
Equity Assurance Plan	**Dr. K.N.SHEEBA**	0431-2503113	9486001196	0431-2500133	sheeba@nitt.edu
MIS	**Dr. R.ANAND**	0431-2503423	9486001200	0431-2500133	anandachu@nitt.edu

1.2 Academic Information

- Engineering Programmes offered in Academic year 2014-15

S. No.	Title of Programme	Level (UG,PG,PhD)	Duration (Years)	Year of starting	AICTE Sanctioned Annual Intake	Total Strength (2014-15)
1	Chemical Engineering	UG (B.Tech.)	4 Years	1968-1969	62	72
2	Civil Engineering	UG (B.Tech.)	4 Years	1964-1965	92	101
3	Computer Science & Engineering	UG (B.Tech.)	4 Years	1982-1983	92	105
4	Electrical & Electronics Engineering	UG (B.Tech.)	4 Years	1964-1965	92	103
5	Electronics & Communication Engineering	UG (B.Tech.)	4 Years	1968-1969	92	105
6	Instrumentation & Control Engineering	UG (B.Tech.)	4 Years	1993-1994	92	98
7	Mechanical Engineering	UG (B.Tech.)	4 Years	1964-1965	92	108
8	Metallurgical and Materials Engineering	UG (B.Tech.)	4 Years	1968-1969	62	64
9	Production Engineering	UG (B.Tech.)	4 Years	1986-1987	92	101
10	Architecture	UG (B.Arch.)	5 Years	1980-1981	46	50
11	Energy Engineering	PG (M.Tech.)	2 Year	1986-1987	28	24
12	Chemical Engineering	PG (M.Tech.)	2 Year	1989-1990	28	22
13	Process Control & Instrumentation	PG (M.Tech.)	2 Year	1999 – 2000	28	22
14	Transportation Engineering & Management	PG (M.Tech.)	2 Year	1971-1972	28	26
15	Structural Engineering	PG (M.Tech.)	2 Year	1986-1987	28	28
16	Environmental Engineering	PG (M.Tech.)	2 Year	2006-2007	28	25
17	Computer Science & Engineering	PG (M.Tech.)	2 Year	1993-1994	28	24
18	Power Electronics	PG (M.Tech.)	2 Year	2006-2007	28	28
19	Power Systems	PG (M.Tech.)	2 Year	1971-1972	28	28
20	Communication Systems	PG (M.Tech.)	2 Year	1985-1986	28	27
21	VLSI System	PG (M.Tech.)	2 Year	1999 – 2000	28	24
22	Industrial Safety Engineering	PG (M.Tech.)	2 Year	1985-1986	28	21
23	Thermal Power Engineering	PG (M.Tech.)	2 Year	1970-1971	28	21
24	Materials Science and Engineering	PG (M.Tech.)	2 Year	1989-1990	28	14
25	Welding Engineering	PG (M.Tech.)	2 Year	1985-1986	28	24
26	Industrial Metallurgy	PG (M.Tech.)	2 Year	2011-2012	20	16

27	Industrial Engineering and Management	PG (M.Tech.)	2 Year	1999 - 2000	28	23
28	Manufacturing Technology	PG (M.Tech.)	2 Year	1989 -1990	28	24
29	Non-Destructive Testing	PG (M.Tech.)	2 Year	1995 – 1996	28	27
30	Computer Science	PG (M.Sc.)	2 Year	1978–1979	28	24
31	Chemistry	PG (M.Sc.)	2 Year	1986–1987	28	24
32	Applied Physics	PG (M.Sc.)	2 Year	1980–1981	28	27
33	Management Studies	PG (MBA)	2 Years	1987 –1988	92	71
34	Computer Applications	PG (MCA)	3 Years	1983- 1984	92	86

- **Accreditation Status of UG Programmes:**

Title of UG Programmes being offered	Whether eligible for accreditation or not	Whether accredited as on 30th Jun. 2015	Whether "Applied for" as on 30th Jun. 2015
Chemical Engineering	06.08.2014 (2 Years)	Yes	No
Civil Engineering	01.07.2014 (5 Years)	Yes	No
Computer Science & Engineering	12.01.2005 (3 Years)	No	Applied (03/01/2013)
Electrical & Electronics Engineering	01.07.2014 (5 Years)	Yes	No
Electronics & Communication Engineering	01.01.2014 (2 Years)	Yes	No
Instrumentation & Control Engineering	19.07.2008 (5 Years)	No	Applied (19/05/2014)
Mechanical Engineering	19.07.2008 (5 Years)	No	Applied (19/05/2014)
Metallurgical and Materials Engineering	01.07.2014 (5 Years)	Yes	No
Production Engineering	01.01.2014 (5 Years)	Yes	No

- **Accreditation Status of PG Programmes:**

Title of PG Programmes being offered	Whether eligible for accreditation or not	Whether accredited as on 30th Jun. 2015	Whether "Applied for" as on 30th Jun. 2015
Energy Engineering	Yes	No	Yes
Chemical Engineering	Yes	No	Yes
Process Control & Instrumentation	Yes	No	Yes
Transportation Engineering & Management	Yes	No	Yes
Structural Engineering	Yes	No	Yes
Environmental Engineering	Yes	No	Yes
Computer Science & Engineering	Yes	No	Yes
Power Electronics	Yes	No	Yes
Power Systems	Yes	No	Yes
Communication Systems	Yes	No	Yes
VLSI System	Yes	No	Yes
Industrial Safety Engineering	Yes	No	Yes
Thermal Power Engineering	Yes	No	Yes
Materials Science and Engineering	Yes	No	Yes
Welding Engineering	Yes	No	Yes
Industrial Metallurgy	Yes	No	Yes
Industrial Engineering	Yes	No	Yes
Manufacturing Technology	Yes	No	Yes
Non-Destructive Testing	Yes	No	Yes
Management Studies	Yes	No	Yes
Computer Applications	Yes	No	Yes

1.3 Faculty Status (Regular/On-Contract Faculty as on July 2015)

Faculty Rank	No. of Sanctioned Regular Post	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						
		Eggs. Discipline		Other Disicipline		Engg. Discipline		Other Disicipline		Engg. Discipline		Other Disicipline				
		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.	56	32	-	17	-	1	-	-	-	-	-	-	-	50	6	-
Asso. Prof.	112	42	-	23	-	7	-	8	-	-	-	-	-	80	32	-
Asst. Prof.	225	38	13	17	-	31	77	9	-	-	-	-	-	95	130	90
Lec.																
Total	393	112	-	57	-	39	25	17	15	-	-	-	-	225	168	90

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

1.4 Baseline Data

S. No.	Parameters	Data
1	Total strength of students in all programmes and all years of study in the year 2013-14	5628
2	Total women students in all programmes and all years of study in the year 2013-14	1098
3	Total SC students in all programmes and all years of study in the year 2013-14	851
4	Total ST students in all programmes and all years of study in the year 2013-14	323
5	Total OBC students in all programmes and all years of study in the year 2013-14	1815
6	Number of fully functional p-4 and above level computers available for students in the year 2013-14	1500
7	Total number of syllabus Text books and Reference books available in library for UG &PG students in the year 2013-14	132881
8	**% of UG student placed through campus interviews in the year 2013-14**	85.4%
9	**% of PG student placed through campus interviews in the year 2013-14**	51.5%
10	% of High quality under graduates(75% marks) in the year 2013-14	58%
11	% of High quality post graduates(75% marks) in the year 2013-14	86.09%
12	Number of research publications in Indian refereed Journals in the year 2013-14	70
13	Number of research publications in International refereed Journals in the year 2013-14	238
14	**Number of Patents obtained in the year** 2013-14	1
15	**Number of Patents filed in the year** 2013-14	1
16	Number of sponsored research projects completed in the year 2013-14	20
17	The transition rate of students in percentage from 1st year to 2nd year in the year 2013-14 for: (i) All students (ii) SC (iii) ST (iv) OBC	 91.90% 93.35% 65.45% 93.94%
18	IRG from students fee and other charges in the year 2013-14 (Rs. In lacs)	3927.56
19	IRG from commercialization of R & D products, consultancy & other sources in the year 2013-14 (Rs. in lacs)	6.65
20	Total IRG in the year 2013-14 (Rs. in lacs)	3934.21
21	Total annual recurring expenditure in the year 2013-14 (Rs. in lacs)	9940.75
22	Number of Joint publications with National authors in the year 2013-14	173
23	Number of Joint publications with International authors in the year 2013-14	5
24	Number of R & D products commercialized in the year 2013-14	Nil
25	Number of Joint M.Tech programmes with institutions undertaken in the year 2013-14	19
26	Number of Joint M.Tech programmes with Industry undertaken in the year 2013-14	1
27	Number of joint Ph.D with institutions undertaken in the year 2013-14	47
28	Number of joint Ph.D with Industry undertaken in the year 2013-14	17
29	Number of Joint consultancies undertaken with Institutions in the year 2013-14	Nil
30	Number of Joint consultancies undertaken with Industry in the year 2013-14	2

1.5 Institutions to be eligible for participation in the project under the sub-component 1.2 must fulfill the following benchmarks:

Table-33
Benchmarks for Institutions to Qualify for Sub-component-1.2

S. 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 • 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 Chairman#	Yes	Yes
4	Percentage of eligible UG programmes accredited or applied for	60%	Yes
5	Percentage of eligible PG programmes accredited or applied for	40%	Yes
6	Cumulative number of Ph.Ds produced in the last three academic years (2011-12, 2012-13, 2013-14) Or Cumulative number of M.Tech. produced in the last three academic years (2011-12, 2012-13, 2013-14)	5 50	Yes
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%	No
8	Percentage of regular faculty with PhD in engineering* as percentage of total faculty	15%	Yes

Board of Governors

The Chairman	Ms. Kumud Srinivasan, President, Intel India & Vice-President, Technology and Manufacturing Group, Bangalore
MHRD	Special Secretary or Additional Secretary or Joint Secretary dealing with Technical Education, Department of Higher Education, Ministry of HRD
MHRD	Financial Adviser, Department of Higher Education, Ministry of HRD
Madras IIT Director /Nominee	The Director of IIT- Madras or his nominee not below the rank of Professor Prof.Krishnan Balasubramanian, Dean (Industrial Consultancy & Sponsored Research), IIT-Madras
UGC Nominee:	Prof. (Ms.) Vasudha Kamath, Vice – Chancellor, SNDT Women's University, Mumbai
AICTE Nominee:	Prof. R. Sethuraman, Vice – Chancellor, Shanmugha Arts, Science, Technology & Research Academy (SASTRA) University, Thanjavur
Industrial Nominee	Thiru. Karumuthu T. Kannan, Chairperson, Thiagarajar Mills, Madurai
Industrial Nominee	Thiru. Ravi Viswanathan, President, Global Business, TCS, Chennai
NITT Faculty	Dr.K.Sankaranarayanasamy, Professor, Department of Mechanical Engineering, NITT
NITT Faculty	Dr.K.Thirumaran, Asso. Professor, Department of Architecture, NITT
NITT Director Ex officio Member	Dr.Srinivasan Sundarrajan, Director, NITT
Secretary	Registrar, National Institute of Technology, Tiruchirappalli

2. INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)

2.1 Executive summary of the IDP

Vision

To provide valuable resources for industry and society through excellence in technical education and research

Mission

- To offer state- of-the-art undergraduate, postgraduate and doctoral programmes
- To generate new knowledge by engaging in cutting –edge research
- To undertake collaborative project with academia and industries
- To develop human intellectual capability to its fullest potential

National Institute of Technology, Tiruchirappalli has earned the deserved reputation for itself in promotion of technical excellence in India since its inception in 1964. It had successfully celebrated its Golden Jubilee in the year 2014. The Institute has shown its commitment to Quality Technical Education and Research through its Nineteen Post Graduate programmes and Ph.D. Programmes. The support of TEQIP Phase-I and II had already helped the Institute in achieving the desired goals of the World Bank project.

At present the admission to M. Tech. Programmes is based on the GATE score obtained by the students in the examination. The admission procedure is based on the counseling session conducted on behalf of all NITs. This has helped in filling up of seats in NITT. TEQIP Phase-I had paved the success path for TEQIP Phase-II. In TEQIP Phase –I, our institute has been selected as a Lead Institution. The Total Project Lifetime Allocation for NITT, under TEQIP is Rs.200.000 million and the total expenditure as on 31st March 2009 is Rs.214.361 million (including out of Interest expenditure).

The TEQIP Phase-II is already in progress and most of the targets had been achieved. The following are the objcetives and activities at a Glance of TEQIP-II:

OBJECTIVES

- Strengthening institutions to produce high quality engineers for better employability
- Scaling-up PG education and demand-driven Research & Development and innovation.
- Training of faculty for effective Teaching
- Enhancing Institutional and System Management effectiveness

PG INFRASTRUCTURE ENHANCEMENT ACTIVITIES

- Equipments Procured : 79 Numbers, Amount: Rs.**5.67 Crore (19 M.Tech programmes)** Refer Annex (Page.No: 39)

ACADEMIC RELATED ACTIVITIES

Student research activities:

- 33 PhD students are given TEQIP-II fellowship and contingency for pursuing their doctoral programme.
- 189 Research scholars are provided with Contingency Assistance.
- Research scholars are allowed to participate in the TEQIP-II workshops/seminars organized within the institute.
- 90 Ph.D. students are reimbursed for project consumables such as components, fabrication assistance, publication related charges etc...
- 8 Nos. of Ph.D. students were benefitted under international travel scheme for networking/attending international conferences etc.
- Industrial Visits for PG students to increase the industry institute interaction.

- Student Innovation contest is under progress under the broad theme "Sustainable Energy Technologies". The project related expenses of the winners will be reimbursed.

Faculty development activities:

- 77 Workshops/Seminars are conducted till June 2015 within the Institute. The duration of the workshops/seminars is from 1 to 5 days.
- 3 Industrial workshops, 2 academic Conclave and 4 International Conference were conducted. 2 International Conferences are in progress.
- Conclave on Academic Reforms, CAR-2015 conducted on 28th & 29th April 2015
- 150 teaching faculty had undergone training within India in industries/ research organizations/training centers etc.
- 20 faculty members were benefitted under international travel scheme for networking/attending international conferences/chairing international conferences etc.
- Highly motivated UG students are allowed to go abroad under international travel scheme 3 Nos(UG-Canadian Universities) have utilized so far.
- Eleven faculty with M.Tech qualification who are doing doctoral programmes are given contingency for their research work.
- Faculties are given contingencies for their PG research projects for an amount up to Rs. 65,000/- per faculty. In this scheme 155 faculty members were benefited.
- Outbound trainings are conducted for group of faculty and non-teaching staff at various levels for team building and experiential learning for effective group dynamics.
- 280 Non teaching staff had undergone training within India.

Quality updation/academic reforms:

- BoG (Board of Studies meeting) for curriculum development for B.Tech and M.Tech programmes are conducted under TEQIP-II
- Applications were sent to NBA for 2 UG programmes (ICE and Mechanical). Chemical, Civil, EEE, ECE, MME and Pro were accredited under TEQIP-II.
- NBA accreditation applied for all the 19 PG programmes under TEQIP-II.
- Industrial workshops related to syllabus are conducted by industry personnel from reputed industries.
- MIS (Management Information System) of TEQIP-II supports the institutional database.

Activities under I-I-I Cell (Inaugurated on 26th September 2013)

- 24 M.Tech Students visited Armstrong international steam company Chennai on 20th November 2013
- Dr. G. Swaminathan, TEQIP-II Advisor, visited Chennai to discuss with NIST in connection with Industry Institute Interaction Cell (III Cell) on 6th October 2013.
- Conducted 5 days training programme on "OHSAS ISO 18001:2007 organized by Bureau VERITAS Pvt. Ltd., Mumbai. (20 Nos. of M.Tech. students – Mech - 4.2.2014 to 8.2.2014
- Conducted 5 days training programme on "OHSAS ISO 18001:2007 organized by Bureau VERITAS Pvt. Ltd., Mumbai. (20 Nos. of M.Tech. students – Civil - 24.2.2014 to

28.2.2014.

- Conducted 5 days training programme on "OHSAS ISO 18001:2007 organized by Bureau VERITAS Pvt. Ltd., Mumbai. (20 Nos. of M.Tech. students – CEESAT-10.3.2014 to 14.3.2014
- Industrial visit to M/s. Alstom, Bangalore during 20th & 21st Mar, 2014 by 41 M.Tech students
- M/s. NIST Institute Pvt. Ltd., Chennai conducted occupational health and safety in house programme at NITT for 40 M.Tech. Students – 5 to 17.12.2013.
- M/s. MECHCI CADD, Chennai conducted Short term Course on "Piping Technology" for 50 M.Tech. students – 27.3.2014, 28.3.2014 & 19.4.2014
- Three industrial workshops (only by reputed engineers from R&D industry) conducted for faculty and PG students

MoU's signed under TEQIP-II

- MoU between National Institute of Technology, Tiruchirappalli and National Institute of Technology, Uttarakhand signed on 4th April, 2014
- MoA between M/s. Sowmanasya Hospitals and Institute of Psychiatry and National Institute of Technology, Tiruchirappalli signed on 22nd July, 2013.
- MoA between National Institute of Technology, Tiruchirappalli and Indian Institute of Crop Processing Technology (IICPT) is signed on 7th October, 2014.
- MoU between National Institute of Technology, Tiruchirappalli and Sri Kavery Medical Care(Trichy) Limited is signed on 15th April, 2015.
- MoU between National Institute of Technology, Tiruchirappalli and TCS iON professional virtual community solution and learning management systems solution.

Activities under Teaching Learning Centre (Inaugurated on 20th July 2014)

- Workshop on "Effective Teaching Learning Process" with the retired faculty members of NITT on 20th July 2014.
- Workshop on "Making Indian Engineering Education a world class" was held on 15.09.2014 to faculty and students of NITT.
- Two Day work shop on "Effective Teaching Learning for Engineering Faculty" for the temporary faculty members of NITT is conducted on 26th and 27th September 2014.

EQUITY ACTION PLAN

- Bridge course for I year subjects (Mathematics and Programming in C). The failure percentage in the subjects was brought down by 25%.
- Basic bridge course in Professional communication for the first year undergraduate students (101 students benefited)
- Counseling & Guidance Cell established through an MoA.
- Finishing school for PG students to improve the employability (371 Students benefited)
- Personality Building- Karate and Yoga classes for female students
- Diagnostic Tests- 70 students have been identified for remedial classes.

FUND UTILIZATION AND FINANCIAL STATUS (as on June 2015)

- Amount Sanctioned 12.5 Crore
- Total Expenditure 11.91 Crore
- Committed Expenditure & Pipeline (Including Interest Earned Money) 0.79 Crore

Details of the Audits/Mentor's visit

- Performance Audit-I and II is conducted during(10^{th} – 12^{th} Dec, 2013) and (21^{st} – 23^{rd} Sep,2014), respectively by Dr.H.C.Taneja, Professor, Delhi Technological University
- Data Audit-I and II is conducted during (10^{th} Dec, 2013) and (25^{th} Aug, 2014), respectively by Dr.N.Ramachandran, Professor, NIT Calicut.
- Mentor's 1^{st} and 2^{nd} Visit is conducted during (21^{st}-23^{rd} Nov, 2012) and (13^{th} -15^{th}March, 2014), respectively by Dr.K.A.Bhaskaran, IIT-M (Retd.,)
- Procurement Review from NPIU is conducted on 22^{nd} March, 2013 by Global Procurement Consultant Ltd.
- Internal Audit is conducted during 8^{th}-10^{th} May, 2014 & 4^{th}-6^{th} December 2014.

IDP proposal for TEQIP Phase-II extended period – Action Plan up to October 2016

It is proposed that an amount of Rs. 1.8 crore will be spent for the infrastructure development. Equipments worth Rs. 1.52 crore will be spent for the purchase of research equipments for 19 PG programmes for strengthening laboratories. Rs.28 lakhs will be spent for procurement of equipments and learning resources in strengthening the Teaching-Learning Center that was set up in July 7, 2014 under TEQIP-II. Presently 28 TEQIP Research scholars are continuing their doctoral programmes in their fourth year. Therefore an amount of Rs.1.47 crores is required to meet their fellowship and contingency. Also, it is proposed to allocate an amount of Rs. 5 lakhs to enhance R&D and Institutional consultancy activities. An amount of Rs. 80 lakhs may be allocated for Faculty and Staff development activities for enhancing competence based on TNA. The strengthening of III Cell which

was set up on September 26, 2013 is possible by apportioning an amount of Rs. 28 lakhs up to the extended period. As there is always a need for enhancing the Good governance, administrative officials can undergo specialized Management Capacity enhancement programmes for which an amount of Rs. 23 lakhs is earmarked. To continue the Academic reforms for quality technical education and to compete with the latest trends in technology a budget of Rs. 50 lakhs is allocated. The activities under Equity plan can be strengthened by an estimated budget of Rs.50 lakhs. Incremental Operating Cost for support of above activities such as AMC, consumables and salaries, Operation and Maintenance may be allocated an amount of Rs. 86 lakhs.

Finance Utilization Plan for the extended project period up to October 2016

Sl. No	Activities	Requirement Rs. In Lakhs	Financial Year			
			2014-15	2015-16	July – Oct 2016	Remarks
1	Infrastructure improvements for teaching, training and learning through:	180				**A New Proposal**
	i) Establishment of new laboratories for new and existing PG programmes, faculty research, etc.		**115**	**60**		
	(ii) Updation of learning resources		**5**	**0**		
	(iii) Procurement of furniture		**0**	**0**		
	(iv) Modernization and strengthening of libraries		**0**	**0**		
2	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	**147**	**21**	**94**	**32**	
3	Enhancement of R&D and institutional consultancy activities	**5**	**3**	**2**		
4	Faculty and Staff development for improved competence based on TNA	**80**	**40**	**30**	**10**	
5	Enhanced interaction with Industry	**28**	**10**	**15**	**3**	
6	Institutional Management Capacity enhancement	**23**	**10**	**10**	**3**	
7	Implementation of institutional reforms	**50**	**5**	**35**	**10**	
8	Academic support for weak students	**50**	**10**	**30**	**10**	
9	Incremental Operating Cost	**86**	**15**	**50**	**21**	
	Total	**649**	**234**	**326**	**89**	

Institutional Governance along with timelines

The institute always strives to achieve the institutional strategic vision, mission and plan - identifying a clear development path for the institution through its long-term business plans and annual budgets. The Vision, Mission and strategic plan are evolved by the institute faculty through extensive deliberations. Vision & Mission have been displayed in the institute website (http://www.nitt.edu/) and course plans are given to students.

Each department has its own vision and mission aligning towards that of institute and the same has been displayed in the department's website. These are discussed in the Board of Governors as part of information agenda (college annual progress report) presented by the Director. Annual budgets are regularly presented to BoG and are deliberated and approved. The minutes of the BoG meeting are regularly updated on the Institute website (http://www.nitt.edu/home/righttoinfoact/). The C&AG(Comptroller and Audit General) audit is regularly conducted twice in a year. The Governing Body frequently 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 management, clear procedures for managing physical and human resources. The auditors ensure that funds provided by funding bodies are used in accordance with the terms and conditions specified in any funding agreements /contracts /memorandum. Audited statements of accounts are being discussed and approved annually. Budgets are approved by the BOG annually after detailed discussion. Finance Committee meetings are held quarterly to review and approve the expenditures. Proceedings of Finance committee are presented to BOG for approval. Policies on a range of systems, including treasury management, investment management, risk management, debt management, and grants and contracts do not exist. Human resource requirements are met with the permission of chair and approved by BOG in the subsequent meetings. The Governing Body monitors institutional performance and quality assurance arrangements. They are benchmarked against other National Institutes like IITs, IISc etc.. and top ranked world Institutions (including accreditation, and alignment with national and international quality assurance systems) to show that they are broadly keeping pace with the institutions they would regard as their peers or competitors to ensure and enhance institutional reputation. Infrastructure developments are discussed in the BOG. Meritorious students are admitted with good overall ranking (Refer http://www.nitt.edu/home/admissions/btech/).The annual report is presented and discussed in the BOG and also published. The Governing Body maintain, and publicly disclose, a register of interests of members of its governing body.

2.2 **Provide the details (in terms of methodology used, analysis carried out of the data and information collected and inferences derived with respect to strengths, weaknesses, opportunities and threats) of SWOT analysis carried out.**

The draft SWOT was circulated to all the Heads of the Departments of National Institute of Technology, Tiruchirappalli. They were asked to discuss with their colleagues. Their comments were received, reviewed and the SWOT analysis report was prepared based on the 10 Year perspective plan of NITT. The vision and the mission statements were carved out.

Vision Statement

To grow into a Nodal centre imparting and sustaining technical excellence in frontier areas of Research.

Mission Statement

* Nurturing technical excellence in Post Graduate and Doctoral studies.
* Need based training for faculty and staff in frontier areas of Technology.
* Promotion of Industry Institute Interaction for Research and Development.
* Collaboration with frontier Institutes of globe for imparting research culture.

10 Year Perspective Plan for NITT

- To remain consistently in the top 10 technical institutes of the country
- New academic programmes in cutting edge areas
- Establishment of Corporate funded state-of-the art Labs and PG programmes
- MoUs with foreign universities, leading research labs and corporates
- Focused research in functional areas
- Creation of Corpus Fund of Rs. 100 cr.
- Achieving National Benchmarking standards in selected departments
- Meeting the societal needs in respect of local industries, villages, Governmental agencies etc.
- Chair Professors in selected Departments
- Self-sustenance – financial autonomy

SWOT ANALYSIS

STRENGTHS

- Well qualified and dedicated faculty
- Creamy layer of students through AIEEE for UG and through GATE for PG
- Brand image due to 50 years standing Alumni are in Senior / influential positions spread across the globe
- Well established credit based curriculum and a very credible examination system
- Academic/financial and functional autonomy
- Excellent central facilities – Computing / Library etc
- Sports facilities: Gym, Swimming Pool, Courts and Play grounds
- Sufficient land for future developments of infrastructure

- Near total placement in the past decade. High repute amongst corporates for recruiting from the campus
- All India Character
- Best performance in TEQIP
- Close liaison won major industries like BHEL, NLC –etc and Research & Development establishment
- Fully resident campus enables 24 X 7 working

WEAKNESSES

- Inadequate and not qualified supporting staff
- Attracting students for higher studies in Engineering
- Journals and internet connectivity not par with that of IITs.

OPPORTUNITIES

- Increased intake of UG and PG students
- Innovative programs like Dual degree (B.Tech.-MBA), Integrated M.Tech./M.Sc.
- Large demand for quality education -Exchange Programmes & tie up with foreign universities
- Funding from TEQIP and other sources for improving infrastructure for Research
- Research Activities in terms of Ph.D. work and sponsored research projects
- Boom in economy – MNC / FDI flowing in – looking for talent contract / sponsored
- Training of technical supporting staff
- Tapping 2,00,000 man years of Alumni experience and also tapping potential for building corpus fund, developing labs, chair professorships, collaborative programs with universities / industries etc

THREATS

- Globalization of Education
- Lack of incentives on par with IITs and other Institutes
- Lower fund allocation by government compared to IITs and IISc.
- Foreign universities opening shops (under GATS education is under trade in services)
- Boom in self-financing institutions – growing in infrastructure as well academic with foreign tie up etc.

2.3 **State the specific objectives and expected results of your proposal in terms of, "Scaling-up post graduate education and demand-driven R&D&I". These objectives and results should be linked to the SWOT analysis.-**

Specific objective under TEQIP

- Enhancement of Research by a paradigm shift towards Research & Development.
- Promotion of Institute Institute Interaction.
- Joint publication in peer reviewed Journals.
- Soliciting international partnership in research.

Strategic Plan

- Efforts will be made to increase the intake of M.S. & Ph.D. students at the rate of 25 % every year.
- Ph.D. scholars will be sent for training to foreign universities for a period of one week and this will promote joint publication in international Journals with high impact factor.
- PG / Ph.D. scholars will be encouraged to participate in International conference in India and Abroad.
- M.Tech. students will be motivated to publish at least one National\International Journal paper based on their project work.
- Faculty will be motivated to go for more number of sponsored and International collaborative projects.
- Industry Institute Interaction will be given more encouragement.
- More emphasis will be given for Research based consultancies.
- Substantial increase in Journal publication by faculty, by requesting faculty to achieve minimum target level for the first year of the project period. Every year the target will be enhanced by 20 % and the faculty members will be encouraged to achieve the target levels.
- Motivating faculty by awarding of Best Teacher and Best Researcher awards.
- Substantial increase in filing of Patents by faculty

Justification

- National Institute of Technology, Tiruchirappalli participated in TEQIP Phase-I the Performance Audit score of 9.7 in a scale of 10 (top among all centrally funded Institutions).
- Established brand name
- Well qualified and dedicated faculty
- Creamy layer of students through AIEEE for UG and through GATE for PG
- Brand image due to 40 years standing Alumni who are in Senior / influential positions spread across the globe
- Well established credit based curriculum and a very credible examination system
- Academic/financial and functional autonomy
- Excellent central facilities – Computing / Library etc
- Sports facilities: Gym, Swimming Pool, Courts and Play grounds
- Sufficient land for future developments of infrastructure
- Near total placement in the past decade. High repute amongst corporate for recruiting from the campus
- All India Character
- Close liaison won major industries like BHEL, NLC – etc and Research & Development establishment
- Fully residential campus enables 24 X 7 working.
- Credit based curriculum system.
- Academic administrative and financial authority in vogue.
- Teacher evaluation by students.
- 100% implementation of reforms suggested by TEQIP Phase-I.

2.4 **Provide an Action Plan for scaling-up enrollment into Masters and Doctoral Programmes**

At Present the number of P.G. Students intake per year is 497, the number of Ph.D Candidates is 116. Efforts will be made to enrolment of more number of M.S. and Ph.D. candidates by way of more Industry-Institute interaction. An amount of Rs 1.47 crore have been earmarked for this purpose.

Ph.D. students are being sent abroad for a period of one week as well as allowing them to present research paper in conferences and encourage them to do work at their labs and plan for a combined publication.

2.5 **Provide an Action Plan for improving collaboration with industry.**

ACTION PLAN:

National Institute of Technology, Tiruchirappalli has signed MoU with industrial giants like BHEL, Neyveli Lignite Corporation (NLC) etc. The institute also has entered into MoU with Chitrai Thirunal Institute, Thiruvananthapuram.

Efforts will be made for collaboration with more industrial giants and Institutes of Technical Excellence.

An Industry-Institute interaction cell (IIIC) is established for purposeful interaction with industries and its composition should be maintained as per the guidelines.

- Organizing workshops, symposia with joint participation of the industry.
- Encouraging engineers from industry to visit NITT to deliver guest lectures
- Participation of experts from industry in curriculum development
- Arranging training for faculty members at industries for at least 2-4 weeks
- Professional consultancy by the faculty to solve industrial problems
- Sharing testing facilities between Industry and Institute
- Joint research programmes and field studies on industrial problems
- Visit of industry executives and practicing engineers to the institute for an express overseeing research facilities and laboratories, discussions and delivering lectures on industrial practices, trends and experience.
- Memoranda of Understanding between industries and institute to bring the two sectors emotionally and technically closer.
- HRD programmes for practicing engineers by the faculty
- Collaborative degree programmes
- UG and PG project work in industry under the joint guidance of faculty and experts from industry.
- Practicing engineers to take up part-time M.Tech./ M.S. / Ph.D. programme at NITT
- Visiting faculty /Professor from industry
- Professional chairs sponsored by industries at the institute
- R&D labs sponsored by industries at the institute.

- Scholarship/fellowship instituted by industries at the institute for students
- Summer /Winter internship for students
- Workshop on current /latest technology developments in the concerned areas of industries
- An amount of Rs 0.28 Crore has been earmarked for Institute –Industry interaction.

2.6 **Provide an Action Plan for:**

- **Quantitatively increasing and qualitatively improving research by their faculty individually, jointly and collaboratively.**

✓ National Institute of Technology, Tiruchirappalli has signed MoUs with industrial giants like TCS, BHEL, Neyveli Lignite Corporation (NLC) etc. The institute also has entered into an MoU with Sree **Chitra Tirunal Institute for Medical Sciences & Technology**. Trivandrum.

✓ Efforts will be made for collaboration with more industrial giants and Institutes of Technical Excellence.

✓ The Industry-Institute interaction cell (IIIC) will be strengthened to establish purposeful interaction with industries and its composition should be maintained as per the guidelines

✓ Industry-Institute Partnership is an ongoing and sustained programme with multiple stakeholders. It also aims to carry out mutually beneficial activities through established processes. Further, the Institute has to continuously engage with the industry to market the capabilities and look for opportunities. The faculty members should be encouraged to take up consultancy assignments through systematic exposure and training.

- **All Departments to have MOUs with industry**

✓ The interaction with industry is now limited to practicing engineers and managers participating in the curriculum development and delivery. In addition they also participate in the seminars and workshops organized by the Institute. Few courses are handled by industry personnel. However, these are infrequent and are also limited curricular inputs at the UG level.

✓ It is proposed to initiate actions to ensure all the Departments to have MoUs with relevant industrial organizations to promote mutually beneficial long term collaboration. These MoUs will focus on carrying out sponsored research, Industrial visits, industry-sponsored fellowships for Ph.D. Scholars, offering consulting services, Faculty training, continuing education programs, etc. Joint action committees involving senior faculty members and senior executives will be part of the MoUs to achieve the overall effectiveness. Such MoUs will also enable senior personnel of Industry to serve as adjunct faculty in the Institute. Further, faculty members may also be encouraged and deputed to industry to gain industrial experience.

- **Encouraging faculty to take up consultancy**

✓ Key research facilities have been created in all the departments. High-end equipment such as SEM, TEM, VSM, etc has also been procured through sponsored research projects and TEQIP Phase I & II. Such facilities are being used by the faculty members and Ph.D. scholars to improve the quality and quantity of research publications.

✓ It is proposed to engage with industry in order to translate "Research skills" into "Consulting skills" through a systematic approach of identifying opportunities, mapping with internal talents and eventually take on consulting assignments.

- **Extending Academic Programmes for the industry**

✓ The first level of industry-institute collaboration has taken shape through industry inputs to curriculum development, participation of practicing managers in the co-curricular programmes and internships for students. The next level of collaboration should focus on win-win partnerships between the institute and the industry.

✓ The growth of our economy is characterized by a few industry segments, such as Information Technology, Manufacturing etc, leading the way. There is a need to support the need for development of skills of employees in these sectors. It is proposed to launch academic programmes to support the industries. The curriculum and delivery approaches may be suitably modified to specific industry or organizations.

- **Industry sponsored specialized laboratories**

✓ Research facilities are being created with a mission to encourage and enhance the activities which will, in course of time, boost the country's economy through developing new knowledge innovations and technologies which can be adopted by industries. Leading organizations such as Motorola, Sun Micro Systems have set up laboratories to encourage research.

✓ It is proposed to invite leading organizations to set up integrated research laboratories useful to one or more departments. In this regard, detailed proposals will be sent to leading organizations and meaningful dialogue will be initiated so as to ensure such laboratories are set up in all the departments. These laboratories will enhance the research that caters to the emergent industry through joint R&D activities.

- **Centers of Excellence to be set up with industry support**

✓ The purpose of industry–institute linkage is to create sustained value to the economy and society through unique contributions. Such high-value linkages can be achieved by bringing together the expertise of Industry and Institutes. These initiatives also need formal structures and systematic processes to ensure the value delivery.

✓ It is proposed to set up industry sponsored Centers of Excellence in core areas. Such centers will have the necessary infrastructure such as Industry sponsored R&D Projects, and a team of experts drawn from the organization and the academic departments. Participation of faculty in such Centers of Excellence will be suitably recognized in the performance assessments.

- **Creation of Chair in all academic departments**

✓ Institutes benefit in many ways by creating Industry –sponsored Chairs in each department. These Chairs will be an additional faculty position to the department and shall provide a linkage to the sponsoring organization and to the industry at large. A Steel chair position in MME department sponsored by Ministry of Steel has been created

✓ It is proposed to take up initiatives to establish industry sponsored Chairs in each department.

- **Collaborating with Indian and foreign institution in academic and research area through MoUs.**

✓ National Institute of Technology, Tiruchirappalli has signed a MoU with Nagoya Institute of Technology, Japan in the areas of Academic and Research.

✓ There exists a MoU between National Institute of Technology, Tiruchirappalli and National Institute of Materials Science, Tsukuba, Japan, for collaboration in academic and research.

✓ National Institute Technology, Tiruchirappalli has signed a MOU with Sri Chitra Thirunal Institute of Medical Sciences and Technology, Tiruvananthapuram for collaboration in Medical Sciences and Research.

✓ National Institute Technology, Tiruchirappalli has signed a Memorandum of Understanding with the National University of Singapore, Singapore and the Nanyang Technological University, Singapore.

✓ National Institute of Technology, Tiruchirappalli has signed a MoU with National Institute of Technology, Uttarakhand for exchange of Scientific and Technical Information, Joint supervision of Postgraduate and Ph.D students, Undertaking collaborative research activities through participation in Nationally and Internationally funded projects.

✓ National Institute Technology, Tiruchirappalli has signed a MOA with M/s. Sowmanasya Hospitals and Institute of Psychiatry and National Institute of Technology, Tiruchirappalli

✓ MoA between National Institute of Technology, Tiruchirappalli and Indian Institute of Crop Processing Technology (IICPT) is signed on 7th October, 2014.

✓ MoU between National Institute of Technology, Tiruchirappalli and Sri Kavery Medical Care(Trichy) Limited is signed on 15th April, 2015.

✓ MoU signed between National Institute of Technology, Tiruchirappalli and TCS iON professional virtual community solution and learning management systems solution.

2.7 **Provide Faculty Development Plan from the first 18 months to achieve improved competence based on Training Needs Analysis (TNA) in the following areas. Attach the summary of Training Needs Analysis carried out.**

All the Departments of National Institute of Technology, Tiruchirappalli were made to understand the Training Need and analysis. The importance of sharpening the saw, i.e., Excellence in teaching through pedagogy was emphasized. The entire faculty irrespective of the seniority will be undergoing pedagogical training for two weeks, one week in basic training and another week advanced training. Based on the TNA 10 batches of the faculty will have basic course in pedagogy for 18 months. Since the pedagogical training is important in house the academic culture will not suffer. Based on the TNA the training component for the faculty is as given below

Items	0-6 months	7-12 months	13-18 months
Basic and advanced pedagogy training	1/3 of faculty	1/3 of faculty	1/3 of faculty
Subject/domain knowledge enhancement	Non Ph.D. faculty to be enrolled for Ph.D. New e- books and e-journals will be added to Library. Faculty will be given training in industries atleast for 15 days in a year.	Non Ph.D. faculty to be enrolled for Ph.D. New e- books and e- journals will be added to Library. Faculty will be given training in industries atleast for 15 days in a year.	Non Ph.D. faculty to be enrolled for Ph.D. New e- books and e- journals will be added to Library. Faculty will be given training in industries atleast for 15 days in a year.
Attendance in activities such as workshop, etc	Atleast one event will be sponsored for each faculty in every semester		
Improvement in faculty qualification	Those who have not registered for Ph.D. will be asked to do registration Identified faculty with competence should be given opportunities (going for PDF) to carry out work in cutting edge technologies at India and abroad.		
Improving research capabilities	1) Increase the no. of M.S/Ph.D research scholarship for all departments 2) Increase in enrollment of sponsored M.S/Ph.D scholars from industry. 3)Inviting subject experts from foreign countries /R&D labs to interact with faculty and students to know the latest trends in technology 4) Faculty are motivated to derive sponsored projects based on DD R&D&I in cutting edge technologies and industry based projects		

2.8 **Provide an Action Plan for training technical and other staff in functional areas.**

All the Departments of National Institute of Technology, Tiruchirappalli were made to understand the Training Need and analysis. The Heads of the Department appraised the Technical and supporting staff about the TEQIP-II and the training components in particular. Technical and supporting staff have given their training needs in the prescribed proforma.

1. Each department will nominate a faculty to interact with all its faculty and staff to identify the training needs and skill improvements needed.
2. Based on the inputs from all departments' nominees, step will be taken to segregate and group the training program into district categories.

   For example: Instrument operator, electrician, software skills etc.
3. Particularly for senior faculty members training will be proposed in one area of leadership, finance quality and administration.
4. For middle level faculty technical and general relationship training needs will be identified.
5. For young and entry level faculty technical and domain knowledge enhancement training programmes will be conducted.

2.9 **Describe the relevance and coherence of Institutional Development Proposal with State's/National (in case of CFIs) Industrial / Economic Development Plan.**

- Through TEQIP activities there exist a systemic and sustainable strategy to make effective use of Educational Resources for scaling educational opportunity and excellence in the Indian context.
- Good Research Laboratories and increased publishing of papers and patents helps to develop a brand name for the Institute in the long run.
- Quality PG students and Ph.D. scholars will be enhanced.
- The social status of the faculty will be improved and this will motivate Engineering Graduates to take up teaching as a profession.
- Development of Centres of Excellence will add a feather to the cap of the Institute.
- Relevance of the PG programme will be enhanced by proper utilization of the TEQIP fund.
- Better Institutional Management System through MIS.

2.10 **Describe briefly the participation of departments/faculty in the proposal preparation and implementation.**

The Heads of the Department and the faculty members were taken into confidence in the SWOT Analysis, Procurement and TNA during the project proposal preparation.

- Each department HoD and Coordinator will carry out training need analysis (TNA) for faculty, supporting and technical staff.
- For faculty training abroad, the TEQIP guidelines will be followed. The same will be applied for Ph.D. scholars to be sent abroad.
- The faculty of each department will be encouraged to conduct workshop/seminar/other training every semester.
- The Best practices adopted in the Institute will be deliberated in a workshop/conference by inviting other institute participating in TEQIP Phase-II.

2.11 **Describe the Institutional Project implementation arrangements.**

The following team will carry out the TEQIP implementation in the institute

- Director of the Institute is the project Leader.
- There are 5 TEQIP Nodal Officers looking after Procurement, Finance, Academic, Equity Plan and MIS working under a TEQIP Coordinator.
- Each Department will have one TEQIP Coordinator who is responsible for liaison work for all TEQIP activities.
- All purchases or procurement will be made scrupulously following World Bank guidelines.
- Training Abroad for faculty and Ph.D. scholars will be carried out with the approval of the Board of Governors.
- All accounts and reports will be thoroughly audited both by internal and external audit.

2.12 Provide as Institutional budget in Table No.34

Table-34:
Institutional Project Budget for Sub-Component 1.2

Table-34: INSTITUTIONAL BUDGET (Rs. In Lacs)

Sl. No	Activities	Requirement	Financial Year			
			2014-15	2015-16	July – Oct 2016	Remarks
1	Infrastructure improvements for teaching, training and learning through:	180				A New Proposal
	i) Establishment of new laboratories for new and existing PG programmes, faculty research, etc.		115	60		
	(ii) Updation of learning resources		5	0		
	(iii) Procurement of furniture		0	0		
	(iv) Modernization and strengthening of libraries		0	0		
2	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	147	21	94	32	
3	Enhancement of R&D and institutional consultancy activities	5	3	2		
4	Faculty and Staff development for improved competence based on TNA	80	40	30	10	
5	Enhanced interaction with Industry	28	10	15	3	
6	Institutional Management Capacity enhancement	23	10	10	3	
7	Implementation of institutional reforms	50	5	35	10	
8	Academic support for weak students	50	10	30	10	
9	Incremental Operating Cost	86	15	50	21	
	Total	649	234	326	89	

Note: NITT has been successful in implementing all the above activities and spending the money sanctioned to the tune of 94% (of the released amount of Rs.12.50 Crores) by 30.06.2015 itself!!

2.13 (a) Provide the targets against the deliverables given in Table 35.

Table-35: Project Targets[1] for Institutions under Sub-Component 1.2

(Rs. In Lakh)

S. No	Deliverables	Baseline (2013-14)	Targets to be achieved	
			At the end of 1 year of joining the project	By Project closing
1	Number of students registered for (a) Masters in Engineering Programme (b) Doctoral programme in engineering	 456 117	 542 125	 542 130
2	Revenue from externally funded R&D projects and consultancies in total revenue (Rs. In lakhs)	6.65	7.0	7.5
3	Number of a) research publications in refereed Journals • National journals • International journals b) citations c) patents obtained / filed d) books e) No. of R&D projects commercialized	 81 358 2 4 Nil	 100 500 4 4 4 2	 100 500 4 4 8 4
4	IRG as % of total recurring expenditure	39.57%	42%	45%
5	Number of co-authored publication in refereed journals a) National b) International	 27 151	 50 160	 90 170
6	Student credentials a) campus placement rate of • UG students • PG students b) Average salary of placement package for (Rs. In lacs) • UG students • PG students	 85.4% 51.5% 6.0 LPA 5.0 LPA	 95% 70% 6.0 LPA 5.0 LPA	 99% 70% 6.0 LPA 5.0 LPA
7	Number of collaborative programmes with industry	1	2	3
8	Accreditation Status	89% UG 100% PG	95% UG 100% PG	100% UG 100% PG
9	Vacancy position for faculty and staff	Faculty / Staff	Faculty / Staff	Faculty / Staff
	Sanctioned	393 / 432	15% / 15%	Zero vacancy / Zero vacancy
	In Position	225 / 229		
	Vacancy	168 / 203		
10	Number of regular faculty with PhD in engineering disciplines	183	200	200

2.14 Give an action plan to ensure that the project activities would be sustained after the end of the Project

- The action undertaken during the project period will enhance the involvement of faculty in future research and publishing of papers
- Abroad training is helpful for faculties in getting more projects and this will sustain the growth.
- The PG & Ph.D. students quality will go up and because of this their job opportunities will also go up.
- Research based consultancy will boost up the IRG of the Institute.
- Creating a corpus fund out of portion of IRG will sustain the maintenance of the procured item.

2.15 **Provide any other information related to special academic achievements of the Institution.**

Notable Achievement by Faculty Members in 2014-15

S.No.	Name	Prizes/Awards	Organization
Chemical Engineering			
1.	Dr. K.N Sheeba	Most Inspiring Women Engineer, Engineering Watch, International women' day 2014.	
2.	Dr. P. Sivashanmugam	Golden Jubilee Distinguished Alumni award for outstanding contribution to teaching and research in NIT,Trichy	NIT,Trichy
Civil Engineering			
3.	Dr.C.Natarajan	Mayan Awards 2014 conferred on Mr. C. Natarajan for Zealous Contribution in Structural Designs by the Excellency of the Governor of Tamil Nadu on January 4, 2015. Award of appreciation of being the structural consultant of Public Building at Tiruchirappali Region by ICI- UltraTech Endowment Award – 2014	Vista India, Chennai ICI- UltraTech
4.	Dr. S.Jayalekshmi	Best Paper Award(Co-Author), International Journal of Civil Engineering Paper Details: Sudeep Sapkota, Madhukar Dhingra and S.Jayalekshmi(2014) Review on Soil Stabilisation Techniques, International Journal of Civil Engineering(IJCE),ISSN(P) 2278-9987;ISSN€: 2278-9995, Volume 3, Issue 3, May 2014, pp.63-78.	Awarded by International Academy of Science, Engineering and Technology
Computer Science Engineering			
1.	Dr. S. SELVAKUMAR	Distinguished Alumni Award at on Golden Jubilee celebration	NIT Trichy

2.	Dr. R. LEELA VELUSAMY	Distinguished Alumni Award on Golden Jubilee celebration	NIT Trichy
Electrical and Electronics Engineering			
1	Dr. N. AmmasaiGounden	Distinguished Alumni Faculty Award for serving personnel at NIT Trichy	NIT Trichy
2	Dr. C. Nagamani	Nominated as External Review Committee Member, NIT Puducherry	B.O.G., NIT Puducherry
3	Dr. S. Arul Daniel	Distinguished Alumni Faculty Award for serving personnel at NIT Trichy	NIT Trichy
Electrical and Communication Engineering			
1.	Dr.M. Bhaskar	**Best Paper award** in International conference	1st International conference on Microelectronics, Circuits and Systems (MICRO-2014), July 2014, Kolkata.
Mechanical Engineering			
1.	Dr. S. Suresh	Young Scientist Award	DST
2.	Dr. R. Anand	2015 Endeavour Executive Fellowship	Australian Government
Metallurgical and Materials Engineering			
1.	Dr. K. Sivaprasad	Sir Dorabji Tata – TR Anantharaman faculty fellowship	University of Texas, USA
2.	Prof. S. Natarajan	Golden Jubilee Distinguished alumni Award for Serving Personnel at NIT,Trichiruppalli on July 19, 2014	NITT

Notable achievements by students in 2014-15

S.No.	Name	Details of Prizes/Awards	Organization
Architecture			
1.	Akhila Challa	3 Gold, 2 Silver and 1 Bronze medals	Inter – NIT Swimming Meet
2.	Yokeshwar Elangovan	1st Prize in Oratory Competition	NCC – CATC2

3.	Fahim Jalal, Shyam sundar,S., Sheik Thoufeeq Mohammed and Adarsh Simon	Special Mention in the University of Westminister Trophy	NASA 2015
4.	Mathew Jose, Manoj Kumar and Dineh,J,	Citation in the University of Westminister Trophy	NASA 2015
Civil Engineering			
5.	Sudeep Sapkota (Passed out B.Tech. student) – First Author	Best Paper Award, International Journal of Civil Engineering Paper Details: Sudeep Sapkota, Madhukar Dhingra and S.Jayalekshmi(2014) Review on Soil Stabilisation Techniques, International Journal of Civil Engineering(IJCE),ISSN(P) 2278-9987;ISSN(E): 2278-9995, Volume 3, Issue 3, May 2014, pp.63-78.	Awarded by International Academy of Science, Engineering and Technology
6.	Madhukar Dhingra (Passed out B.Tech. student) – Co-Author	Best Paper Award, International Journal of Civil Engineering Paper Details: Sudeep Sapkota, Madhukar Dhingra and S.Jayalekshmi(2014) Review on Soil Stabilisation Techniques, International Journal of Civil Engineering(IJCE),ISSN(P) 2278-9987;ISSN(E): 2278-9995, Volume 3, Issue 3, May 2014, pp.63-78.	Awarded by International Academy of Science, Engineering and Technology
7.	J.S.Sankar Jegadesh Ph.D. Scholar, Dept. of Civil Engg., N.I.T., Tiruchirappalli (First Author)	Paper Details Sankar Jegadesh J.S. and S.Jayalekshmi (2015)State of the Art on Design Standards of Concrete Filled Steel Tubular Columns, International Journal of Applied Engineering Research (IJAER), Volume 10, Number 9 (2015) Special Issues ,6537-6542	Awarded best Paper at International Conference, Muthayammal College of Engineering, Rasipuram, Namakkal District 5th to 6th March 2015.
8.	Tusi Mandal Dr. S. T. Ramesh	Best Poster Award	International conference on new frontiers in chemical, energy and environmental

			engineering (INCEEE) Department of Chemical Engineering, National Institute of Technology, Warangal, March 20-21, 2015.
Computer Science Engineering			
1	Shurya Kumar N S	1.Diploma in cyber forensics 2.Certified ethical hacker	
2	Pranav Kumar S	Intern at Samadhan, a startup company, for developing a website based on eHR(Electronic Health Report)	
3	P Sai Prem Patro	Got selected for IAS summer fellowship programme 2014. Did the project at.	IIT-Guwahati
4	Vijay Meena	SILVER MEDAL IN KABADDI DURING ALL INDIA INTER-	NIT SPORTS MEET -14
Electrical and Electronics Engineering			
1	N. SaiKiran	4*400 relay silver 200 meters running bronze Cricket runners up Volleyball runners up	Sports Fete 2014
2	SatrujitMohanty	Gold medal at "udghosh" inter college football	IIT Kanpur
		1st prize in inter department football	NIT Trichy
		2nd runners up at inter NIT football tournament	NIT Warangal February 2015.
3	P.Bharath Chandra	Participated in Sangam, Pragyan'15	NIT Trichy
4	AkshayAnantharaman	Headed the first prize winning team in Sangam, Pragyan'15	Pragyan'15, NIT, Trichy
5	Dilruba N	1. Gold medal in 800 mtrs race, Silver in 400 mtrs race and Silver in 4*100 mtrs relay in Udgosh 2014, Inter University Sportsfete	IIT Kanpur
		2. Gold medal in 800 mtrs race and Silver in 200 mtrs race	Inter Dept Sports Fete 2014
6	Guru Raghav R	Cargil Global Scholarship of USD 2500 per year for three years	Cargill, Inc., through the Institute of

			International Education (IIE)
7	Guru Praanesh R	Cargill Global Scholarship of USD 2500 for three years and leadership development seminars on national and global levels	Cargill Inc., through the Institute of International Education
		First prize in Carnatic Instrumental Solo in Shrutilaya, organized by Club Amruthavarshini, Festember 2014.	NIT Trichy
8	Naveen K	3rd prize in Sangam in non circuital division in Pragyan 15	NIT Trichy
9	Arun Philips	Captain of the first prize winning EEE Table Tennis Team at Sports Fete	Sports Fete
10	K S Ilangovan	3rd place in Saarang' 15	IIT Madras
		2nd place in dance	Unmaad' 15, IIMB and Pravega' 15 at IISc B
		Secured 1st place in dance	Chrysalis Loyola Institute of Business Administration chennai in Feb-15
11	Nishit kumar	Part of the EEE football team. Champions of sports fete 2015.	NIT trichy
12	Alok Kumar	2nd Prize in the Tamilnadu East Zonal level of the All India Essay writing Competition	Shri Ram Chandra Mission and United Nations Information Centre for India and Bhutan
13	Sri Harsha D	Runner-up in cricket	SportsFete'15, NITT
14	Harikapasham	Won gold medal in udgosh	IIT Kanpur
		Third place in 100 meters relay	sports fete
15	Ramanathan RM	Second place in chess	IIT Kanpur
		First place in chess	Colosseum, Sastra University
16	Hari Anirudh	Triumphant EEE basketball team	Inter department Sports Fete 2015
Electrical and Communication Engineering			
1.	S. Anand	**OSA Best paper award**	IIT - Kharagpur

		Optical Society of America Conference (IONS 2014), Kharagpur)	
2.	T D Rahul Raj	**Won second prize**in Web Designing	S.B.O.A School and Junior college
3.	T D Rahul Raj	**Won first prize**in Zonal Competition	Robotics And Embedded System Of USA
4.	Kartheshwar	**Won second prize** in Spark, a innovative idea contest and got qualified for its final round to be conducted in IIT Bombay	Currents, Symposium NITT
5.	Kartheshwar	**Won second prize** in Paper presentation	Probe, Symposium, NITT
6.	Jayadevi D ,Saloniyadav ,Abinaya.C	**Won second prize**in 'hack a thing' by TCS during Kshitij(iitkharagpur)	IIT Kharagpur
7.	VineetVinayakPasupulety	**Special Mention**, Best delegate in the council of INTERPOL	MUN Appulse 2014
8.	VineetVinayakPasupulety	**Special Mention**, Best paper presentation	Greenville, Pragyan 2015, NITT
9.	VineetVinayakPasupulety	**Won third prize**for best speaker	Horizons 2014, NITT
Instrumentation and Control Engineering			
1.	Ms. Josephine Selvarani Ruth Ph.D. scholar	Participation in the Meeting of National Innovation Clubs during the Festival of Innovations on 10 March, 2015.	President's Estate, Rashtrapati Bhavan
2	Prajval Kumar	Presented Project in Finals of International Conference on Advanced Computing and Communications 2014, Quarter Finalists in Texas Instruments Design Contest. Represented Cricket Team at IIT KANPUR UDGOSH in 2014 and inter-NIT competition 2014.	ARM design contest.
3	Hari Haran	Winner of WIPRO EARTHIAN 2015. Finalist at ADCOM 2015 DESIGN CONTEST. Presented project in finals of international conference on Advanced computing and	

		communications 2014, ARM design contest.	
4	Shreyas Prakash	Presented project in finals of international conference on advanced computing and communications 2014, Quarter Finalists in Texas Instruments Design Contest. Secured second place in Fidelity-Innovation Challenge.	ARM design contest.
5	Anisha Mohan	REVELS 15'-2nd place in 4x100m relay,3rd place in 100m. SPORTS FETE 2015(INTER NIT)-1st place 100m,1st place in 4x400m relay UDGOSH 2014)-3rd place in 100m,2nd place in 4x100m relay	Manipal Open Tournament IIT KANPUR
6	Sumangal Vinjamuri	Proficiency Certificate from NATIONAL STOCK EXCHANGE INDIA -"Investment Analyst Pro" NSE Certified Market Professional-Level 1	
7	Renuka	'SPORTS FETE 2015(Inter NIT)-3rd place in 200m,2nd place in 100m,2nd place in 4x100m relay,1st place in throw ball.	
8	Praveen	'SPORTS FETE 2015(Inter NIT Competition)- 1st place in 100m,2nd place in 200m,1st place in 4x100m relay,2nd place in triple jump REVELS 15' 1st place in long jump,2nd place in 4x100m relay.	Manipal Open Tournament
9	A Pradeep	Won 1st place in NIRMAAN(project demonstration)	
10	A Lokeshkumar	Won 1st place in NIRMAAN(project demonstration)	

11	Ria Narayan	Served as **Academic Mentor** for 5 first year students in the **sophomore year** **Cultural Activities:** Runners-up in **Pond's Femina Miss India Campus Princess pageant 2014**. Participated in MUN'14(Model United Session) **Sports Activities:** 1st place in All-India INTER-NIT Sports Meet in girls Badminton 2014. Gold Medalist in Girls Badminton All-India Sastra Sports Tournament –Colosseum- 2014. Winner in Badminton inter-department Sports Fete 2015. Winner in Throw ball inter-department Sports Fete 2015. Vice captain of the College Badminton Team currently. Active Member of the National Sports Organization (NSO). Aug 2013- Present Member of the Organizing Committee of the ALL INDIA INTER-NIT SPORTS MEET 2014	
12	Sushma Sivampett	SPORTS FETE 2015 1st place in 1500m race 1st place in 4X400m relay 2nd place in 800m race 2nd place in 4x100m relay Captain for Kho –Kho team UDGOSH IIT KANPUR 1ST Place in kho-kho 2nd place for best cadet in NCC annual camp Participated in marathon at Bangalore conducted by TCS in 2014 NIT FETE 2014 2nd place in 800mm meter race 3rd place in long jump & High	

		jump NCC Team won 2nd place in annual camp	
13	Rishabh Rajasekar RK Arvind Akshay P Roy Rohit B S Prajval Kumar	Achievements in Cricket Semi-finalist in Manipal Open Tournament (Revels) in the year 2014. Semi-finalist in Inter-NIT cricket Tournament in the year 2014. Overall First in Cricket SPORTS FETE' 15.	
14	PraveenPrabhakar Anisha Mohan Jia Chakma Renuka Sushma Shivampet	Overall First in Athletics SPORTS FETE'15 Overall Third in IIT-Kanpur (Udgosh 2014) Secured Gold and Silver in events – Long jump, Relay , 100m , 200m in - Manipal Open tournament (Revels)	
15	Priyanka Swami Meghana G	Volley Ball: Part of College Volley Ball Team Quarter Finalist in IIT-Kanpur (Udgosh 2014)	
16	Ishan Bodele Ria Narayan Ram Chander	Badminton: Gold Medal in Sports FETE'. Finalist in IIT-Kanpur(Udgosh 2014)	
17	N.Ramakrishnan	FootBall: Gold Medal in IIT-Kanpur(Udgosh 2014) Bronze Medal in Inter-NIT (MNIT-Allahabad)	
Mechanical Engineering			
1	Sujith Kumar C S	Young Scientist Award	DST
2	Sujith Kumar C S	Canadian Commonwealth scholarship	Canadian Government
3.	Baja Team 2014-15 (Krishnan Rohit & Co.)	Overall : 1st Runner Up Traction Event - (1st) Winner Sales Event - 1st Runner Up "Baja Student India 2015", A National Level Design, Fabrication and Racing Event	NIT, Jamshedpur
Metallurgical and Materials Engineering			

1	Apoorva Saraf (IV year)	Selected as student ambassador under Advanced Student Admission Programme (ASAP)	SP Jain School Management, Singapore Campus
2	Sriram G	Selected to represent India in WSC 2015	Sao Paulo, Brazil under Graphic Design Category
3	Mukka Anudeep -	Awardee of Indian Ministry of steel scholarship	Government of India
4	Vrindaa Somjit	DAAD scholarship MITACS scholarship; Cargill global scholars award	
5	Kunduru Tejaswini	Awardee of Indian Ministry of steel scholarship	Government of India
6	Vijay Adithya	Awardee of Indian Ministry of steel scholarship	Government of India
Production Engineering			
1	V.Deepak (114113092)and B.Manikanta (114113020)	First place in SANGAM , a project exhibition in PRAGYAN -15 (annual tech fest of Nit Trichy)	NIT Trichy

SPONSORED RESEARCH PROJECTS

Our Institute is awarded with 14 Sponsored Research Projects amounting to Rs. 2.05 crore during 2014-15.

Ministries of Government of India and private Industry that have sanctioned sponsored Research Projects to our Institute during the year include

- Council for Scientific and Industrial Research, New Delhi
- University Grants Commission, New Delhi
- Bhabha Atomic Research Centre
- Board of Research in Nuclear Sciences
- Department of Electronics & Information Technology
- Department of Science & Technology (DST) - Inspire
- Government Technology Research Alliance
- Indian Council of Social Science Research
- The National Academy of Sciences, India
- Science and Engineering Research Board

These projects pose considerable Scientific, Technological and Academic challenge to the faculty and students of our Institute providing us an opportunity to work on live problems of immediate relevance to the country.

2.17 Provide an action plan for organising a Finishing School and for improving the academic performance of SC/ST/OBC/academically weak students through innovative methods, such as remedial and skill development classes for increasing the transition rate and pass rate with the objective of improving their employability.

Purpose: This has been aimed at motivating the students to develop their communication skills, lateral thinking, attitude and self confidence.

Trainer: M/s Jade Training Resources (P) Ltd, Bangalore has been identified as the trainer institute.

The course: A preliminary ASTRA series test has been conducted by the trainer institute. Post graduate students of TEQIP sponsored department (371 students) took up the test to evaluate their numeric, verbal and aptitude ability. Based on the screening test, four batches of students each consisting of 28, 34, 40 and 40 were identified for training by the trainer institute. The students were imparted training on Communication, English Fluency, Lateral Thinking, Attitude, Motivation, Grooming, Goal Setting and Group Discussion followed by an individual one to one counseling by the trainer.

Outcome: An individual report consisting of a student's verbal, numerical, reasoning and general knowledge on a total score of 120 for each student and a counseling report had been prepared by the trainer. Student's feedback on the course was also collected which indicated the necessity of such programme for personality development.

Finishing School Program Details

Sl. No.	Particular	Student List	Amount
1	Finishing School was conducted in two batches during 22nd to 28th July 2013 and 30th July to 6th August 2013	243	Rs. 382725
		485 PG	Rs. 145500

Diagnostic Tests for First Year Under Graduate students

Equity Plan under TEQIP-II has provision for identifying academically weak students by conducting Diagnostic tests. The student profile across Mathematics and Professional communication for the B.Tech. I year students of 2014-2015 has been measured through the test. The results of the test will be used to organize remedial classes in Mathematics and Professional communication.

Annex I
PROCURED EQUIPMENTS

Sl. No.	Name of the Equipment	Cost of the Equipment (Rs.)
	CHEMICAL ENGINEERING	
1	HPLC System	2407350
2	FTIR Spectrophotometer	974794
3	Accessories for Perkin - Elmer make DSC and TGA	568503
4	Water Purification System	288750
5	Water Quality Analyzer	316050
6	Three Tank System	393750
7	Continous Stirred Tank Reactor (CSTR)	243075
8	Shell and Tube Heat Exchanger	586446
9	Ultrasonic Generator	375701
10	Centrifuge	853501
	Total	**Rs. 7007920**
	CIVIL ENGINEERING	
11	VISSIM (VISual SIMulation)	385350
12	Cube 5	458698
13	Portable HAZ-DUST Environmental Particulate Air Monitor	551250
14	Concrete Pan mixer	142800
15	Digi Mortar Mixer	89250
16	Concrete Permeability Apparatus	140123
17	Accelerated Steam Curing tank	252000
18	Demountable mechanical strain gauge	64733
19	5 Ton Capacity Electrically operated Dynamic Actuator	778600
20	Total Organic carbon analyzer- High Sensitivity by using Combustion technique with auto sampler	1442700
21	Triaxial Cell including Pore pressure apparatus	691875
	Total	**Rs. 4997379**
	COMPUTER SCIENCE ENGINEERING	
22	Computers, Printers and Scanners (NCB)	2477370
	ELECTRONICS & COMMUNICATION ENGINEERING	
23	RF Signal Generator-9 kHz to 3 GHz with 0.1 Hz	387100
24	Mixed Signal Oscilloscope350 MHz – 2 GHz, Channels: 4 analog & 16 digital (NCB)	969150
25	SoC video Imaging kit	147700

26	High Frequency System Simulation Software (NCB)	1449000
27	5KVA Uninterrupted Power Supply (UPS)	243180
	Total	**Rs. 3196130**
ELECTRICAL & ELECTRONICS ENGINEERING		
28	PV modules	354700
29	Complete protection scheme of a 3-Phase Generator using electromagnetic/Static Relays	621920
30	Inverter modules	218400
31	FPGA Kit	275350
32	2 channel digital storage oscilloscope	483840
33	4 channel digital storage oscilloscope	351015
34	Current Probe	338814
35	Regulated Power Supply	93890
36	Generalized ABCD constants Measurement for Ferranti Effect Studies	111,065
37	D.C. Network Analyzer	85,875
38	Thyristor Controlled Series Compensator	376,705
39	High Voltage Direct Current Transmission Line Simulator with Bi-polar connection	515,250
40	Power Factor Controller	97,325
41	Short Transmission line Unit	223,275
42	Microcomputer based numerical over current relay	192,360
43	Microcomputer 8085 based static VAR compensator	280,525
44	Microcomputer 8085 adaptive power factor controller	291,975
45	Different types of Electro-magnetic and Numerical relays	448,680
	TOTAL	**5,360,964**
INSTRUMENTATION & CONTROL ENGINEERING		
46	LABVIEW Software	118673
47	ELVIS-NI-II	248748
48	Data Acquisition Cards	60000
49	Magnetic Levitation System	372750
50	Programmable Logic Controllers	223096
	TOTAL	**1023267**
MECHANICAL ENGINEERING		
51	Ericsson Cup Tester	685125
52	Tactile Force Measurement System	517500
53	Pressure Transducer with charge amplifier and oscilloscope	295050
54	Thermal Conductivity Meter of Liquids and Gases	949500

55	Welding Expert Software and System	998750
56	Fume Hood Chamber for welding as per the AWS F1.2 standard	430600
57	Two Stroke Petrol engine with Eddy current dynamometer	297,700
	TOTAL	**4174225**
	METALLURGICAL & MATERIALS ENGINEERING	
58	Melting Furnace	876857
59	Slow Speed Diamond Cutter	665106
60	Squeeze Casting Unit	699510
61	Vaccum Furnace	572500
62	Multi Purpose Invertor Power source	996450
63	DIC Microscope with Image Processing	998440
64	Varestrain and Implant Testing Unit	400750
	TOTAL	**5209613**
	NON DESTRUCTIVE TESTING	
65	Digital Eddy Current with Accessories	662663
66	Ultrasonic Phased Array System With Necessary Accessories (NCB)	1783100
	TOTAL	**2445763**
	PRODUCTION ENGINEERING	
67	Ergo Cycle	148850
68	Tread Mill	366400
69	Method Study Equipments	131675
70	Electrochemical Machine	801191
71	MATLAB SOFTWARE	194120
72	Trans Synergic Welding Machine	624750
73	Scratch Tester	716770
74	Vibration Analysis tool Kit	1080000
75	Servo Controlled Hot Deformation Testing Equipment	1573320
	TOTAL	**5637076**
	CENTRAL LIBRARY	
76	Books package - 1	734330
77	Books package - 3	721171
78	Books package - 2	570,055
	TOTAL	**2025556**
	CENTRALIZED FACILITY	
79	Virtual Conference System (NCB)	13168145
	TOTAL COST OF ALL EQUIPMENTS	**5,67,23,408**

DIRECTOR
NIT Tiruchirappalli

NATIONAL INSTITUTE OF TECHNOLOGY * TIRUCHIRAPPALLI * TEQIP - II

Director
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