

Annex-IV (B).b
TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP)
(PHASE-II)

INSTITUTIONAL DEVELOPMENT PROPOSAL

For

Sub-Component 1.2:

Scaling-up Postgraduate Education

And

Demand-driven Research & Development and Innovation

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE
Matunga, Mumbai-400 019

1. INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity:

◆ Name of the Institution	Veermata Jijabai Technological Institute Matunga, Mumbai 400019
◆ Is the Institution AICTE approved?	Yes
◆ Furnish AICTE approval no.	P-2/B-III/RC (BB)/93/31165 dated 31/03/1994 F No PG/MS/ME/2004/Mech-15 dated 28/06/04 F No 740-89-278(E)/RC/95 dated 2/05/2008 F No 740-89-278(E)/RC/95 dated 30/6/2008
◆ 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 Institution / (Autonomous Institute as declared by State Government)

◆ **Names of Heads of Institution and Project Nodal Officers**

Heads and Nodal Officers	Names	Mobile Numbers	Phone Numbers	Fax Numbers	E-mail Addresses
Head of the Institution (Full time appointee)	Dr K G Narayankhedkar	9867518577	022-24198101	022-24152874	director@vjti.org.in
TEQIP Coordinator	Dr. S. P. Borkar	9920687845	022-24198258	022-24152874	spborkar@vjti.org.in
Project Nodal Officers for:					
Academic Activities	Dr. R. N. Awale	9867518583	022-24298174	022-24152874	rnawale@vjti.org.in
Civil Works including Environment Management	Prof. K. K. Sangle	9833919187	022-24298174	022-24152874	kksangle@vjti.org.in
Procurement	Dr. D. N. Raut	9869699909	022-24298235	022-24152874	dnraut@vjti.org.in
Financial Aspects	Dr. G. P. Bhole	9819674305	022-24298152	022-24152874	gpbhole@vjti.org.in
Equity Assurance Plan Implementation	Dr. B. B. Meshram	9969381962	022-24298150	022-24152874	bbmeshram@vjti.org.in

1.2 Academic Information

✦ Engineering programmes¹ offered in Academic year 2009-10

S.No	Title of programmes	Level (UG, PG, PhD)	Duration (Years)	Year of starting	AICTE sanctioned Annual intake	Total student strength
1.	B. Tech Civil Engineering	UG	04	1949	60	279
2.	B. Tech Computer Engineering	UG	04	1986	60	283
3.	B. Tech Electrical Engineering	UG	04	1947	60	281
4.	B. Tech Electronics Engineering	UG	04	1986	60	284
5.	B. Tech Information Tech	UG	04	2001	60	278
6.	B. Tech Mechanical Engineering	UG	04	1947	60	287
7.	B. Tech Production Engineering	UG	04	1973	40	193
8.	B. Tech Textile Technology	UG	04	1946	20	83
9.	M. Tech Civil (Construction Management)	PG	02	1991	17	21
10.	M. Tech Civil (Environmental Engineering)	PG	02	1960	17	14
11.	M. Tech Civil (Structural Engineering)	PG	02	1960	25	40
12.	M. Tech Mechanical (Machine Design)	PG	02	1956	25	47
13.	M. Tech Mechanical (Automobile Engineering)	PG	02	1956	25	35
14.	M. Tech Mechanical (CAD/CAM & Automation)	PG	02	1999	18	29
15.	M. Tech Electronics Engineering	PG	02	1986	25	50
16.	M. Tech Electronics & Telecommunication	PG	02	2005	15	25
17.	M. Tech Electrical (Power System)	PG	02	1955	25	34
18.	M. Tech Electrical (Control System)	PG	02	1955	25	32
19.	M. Tech Computer Engineering	PG	02	1986	25	44
20.	M. Tech Production Engineering	PG	02	1973	18	21
21.	M. Tech Textile Technology	PG	02	1952	18	13
22.	Textile Technology	PhD ²	--	2006	--	03
23.	Electrical Engineering	PhD ²	--	2006	--	15
24.	Mechanical Engineering	PhD ²	--	2006	--	07
25.	Civil Engineering	PhD ²	--	2006	--	01
26.	Electronics Engineering	PhD ²	--	2006	--	--
27.	Production Engineering	PhD ²	--	2006	--	07
28.	Computer Engineering	PhD ²	--	2006	--	07
	Total				698³	2413

1 : All programmes are full time programmes

2: full time Ph D programme started from 2006. However Institute was recognized as Ph D center since 1970 and 14 students have been awarded Ph D degree during last 04 years as given below.

Departments	2006-07	2007-08	2008-09	2009-10
Electrical Engineering	01	01	01	01
Mechanical Engineering	01	01	05	03
Production Engineering			01	

3.Intake for UG is 420 and for PG 298, hence AICTE approved UG intake is $420 \times 4 = 1680$ and PG intake $278 \times 2 = 556$

♦ **Accreditation Status of UG programmes:**

Title of UG programmes being offered	Whether eligible for accreditation or not?	Whether accredited as on 31st March 2010?	Whether “Applied for” as on 31st March 2010?
B. Tech Civil Engineering	Yes	No, up to Feb 6, 2008	Yes
B. Tech Computer Engineering	Yes	Yes, up to 22 Jan 2011	--
B. Tech Electrical Engineering	Yes	Yes, up to 22 Jan 2011	--
B. Tech Electronics Engineering	Yes	Yes, up to 22 Jan 2013	--
B. Tech Information Tech	Yes	Yes, up to 22 Jan 2011	--
B. Tech Mechanical Engineering	Yes	Yes, up to 22 Jan 2011	--
B. Tech Production Engineering	Yes	No, up to Feb 6, 2008	Yes
B. Tech Textile Technology	Yes	No, up to Feb 6, 2008	Yes

♦ **Accreditation Status of PG programmes(M Tech):**

Title of PG programmes being offered	Whether eligible for accreditation or not?	Whether accredited as on 31st March 2010?	Whether “Applied for” as on 31st March 2010?
Mechanical Engineering (CAD/CAM & Automation)	Yes	No	No
Civil Engineering (Environmental Engineering)	Yes	Yes, up to 19.07.2011	
Electrical Engineering (Power System)	Yes	Yes, up to 19.07.2011	
Electrical Engineering (Control System)	Yes	Yes, up to 19.07.2011	
Electronics & Telecomm.	Yes	No	No
Mechanical Engineering (Automobile Eng)	Yes	No	No
Civil Engineering (Structural Engineering)	Yes	Yes, up to 19.07.2011	
Computer Engineering	Yes	Yes, up to 19.07.2011	
Civil Engineering (Construction Management)	Yes	Yes, up to 19.07.2011	
Electronics Engineering	Yes	No	Yes, 17.07.2008
Mechanical Engineering (Machine Design)	Yes	No	No
Production Engineering	Yes	No	Yes, 16.07.2008
Textile Technology	Yes	No	No

1.3 Faculty Status (Regular/On-Contract Faculty as on March 31st, 2010)

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+1 0+12 +14)
Professor	29	17	--	--	--	--	--	--	--	--	--	--	--	17	12	--
Asso Prof	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Asst Prof	51	09	--	--	--	15	--	--	--	--	--	--	--	24	27	--
Lecturer	81	01	--	03	--	38	32	07	06	--	03	--	01	49	32	42
Total	161	27	--	03	--	53	32	07	06	--	03	--	01	90	71*	42

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

* There are visiting faculty members to take care of Teaching/Research assignment in addition to 42 contractual faculty.

1.4 Baseline Data (all data given for the following parameters must be restricted to engineering disciplines/fields only)

S.No.	Parameters	
1.	Total strength of students in all programmes and all years of study in the year 2009-10	2413*
2.	Total women students in all programmes and all years of study in the year 2009-10	585
3.	Total SC students in all programmes and all years of study in the year 2009-10	573
4.	Total ST students in all programmes and all years of study in the year 2009-10	139
5.	Total OBC students in all programmes and all years of study in the year 2009-10	747
6.	Number of fully functional P-4 and above level computers available for students in the year 2009-10	839
7.	Total number of text books and reference books available in library for UG and PG students in the year 2009-10	84035
8.	% of UG students placed through campus interviews in the year 2009-10	100
9.	% of PG students placed through campus interviews in the year 2009-10	13
10.	% of high quality under Graduates (>75% marks) in the year 2009-10	60.75
11.	% of high quality postgraduates (>75% marks) in the year 2009-10	62.30
12.	Number of research publications in Indian refereed journals in the year 2009-10	09
13.	Number of research publications in International refereed journals in the year 2009-10	17
14.	Number of patents obtained in the year 2009-10	Nil
15.	Number of patents filed in the year 2009-10	04
16.	Number of sponsored research projects completed in the year 2009-10	02
17.	The transition rate of students in percentage from 1st year to 2nd year in the year 2009-10 for :	
	(i) all students	100
	(ii) SC	100
	(iii) ST	100
	(iv) OBC	100
18.	IRG from students fee and other charges in the year 2009-10 (Rs. in lakh)	694.09
19.	IRG from externally funded R&D projects, Consultancies in the year 2009-10 (Rs. in lakh)	128.45
20.	Total IRG in the year 2009-10 (Rs. in lakh)	822.54
21.	Total annual recurring expenditure of the applicant entity in the year 2009-10 (Rs. in lakh)	1549.87
22.	Number of Joint publications with National authors in the year 2009-10	02
23.	Number of Joint publications with International authors in the year 2009-10	05
24.	Number of R&D products commercialized in the year 2009-10	Nil
25.	Number of joint MTech programmes with institutions undertaken in the year 2009-10	08
26.	Number of joint MTech programmes with Industry undertaken in the year 2009-10	07
27.	Number of joint PhD with institutions undertaken in the year 2009-10	03
28.	Number of joint PhD with Industry undertaken in the year 2009-10	01
29.	Number of joint consultancies undertaken with institutions in the year 2009-10	Nil
30.	Number of joint consultancies undertaken with Industry in the year 2009-10	03

*Actual no. of students as on date including Ph D, however intake as per AICTE is UG intake is 420x4=1680 and PG intake 278x2=556

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	Benchmark	Institution's response (Yes/No)
1.	Does the institution agree to implement all academic and nonacademic reforms given as below: <ul style="list-style-type: none"> ◆ 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 ¹
3.	Presence of Board of Governors with an eminent academician or industrialist as the Chairperson	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 PhDs produced in the last three academic years (2007-08, 2008-09 and 2009-10) or Cumulative number of MTech produced in the last three academic years (2007-08, 2008-09 and 2009-10)	5 or 50	Yes 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 <ul style="list-style-type: none"> ◆ UG Intake 420 X 4 Years = 1680; PG intake 298 for 13 programmes Faculty requirement for UG as per AICTE norms: 1680/15 = 112 Faculty requirement for PG as per AICTE norms: 13 X 2 = 26 Total requirement = 112 + 26 = 138 	65%	Yes ² (138 X 0.65= 89.7) Regular faculty = 90
8.	Percentage of regular faculty with PhD in engineering* as percentage of total faculty	15%	Yes (138 x 0.15= 20.7) No. Faculty with Ph D Qualification in engineering is 27

Note: In respect of accreditation benchmarks for Undergraduate and Postgraduate programmes in Universities, Deemed Universities, University Constituted Colleges/Faculties/Departments, NAAC accreditation is acceptable at the entry point. However, all such project entities will have essentially to achieve the Undergraduate and Postgraduate programmes targets of NBA accreditation as given in Table-30 for Sub-component 1.1 & Table-35 for Sub-component 1.2.

1. Available academic autonomy is granted by State Government since March 2004.

GR No. WBP-2004/(341/0)/(2)/TE-6 21st June 2004 (UGC approval is in process)

2. For UG Programmes: 1:15, For PG Programmes: 1 Professor and 1 Assistant Professor per programme.

2. INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)

2.1 Give the executive summary of the IDP.

Institute is slowly transforming into PG and research Institute with 13 PG programs and around 50 students pursuing their Ph D. The Institute is reputed for excellent training in courses in engineering and technology at diploma, degree and post graduate levels for over three thousand students. Twenty seven courses are offered at the undergraduate, postgraduate, diploma, postgraduate diploma and post diploma levels. The Institute was granted financial, academic, administrative and managerial autonomy from March 2004.

Under the World Bank project – Technical Education Quality Improvement Programme (TEQIP - I), the Institute has completed several projects to establish itself as a world class technological Institute. The modernization activity under the Programme has resulted in excellent central computing facilities, improved laboratory, faculty as well as staff training, workshop and library facilities to students. In continuation with the foundations laid by TEQIP – I, VJTI is determined to improve quality of technical education with special reference to research through post graduate education.

The Institute has proposed for PG programs in the specialized areas of electrical, civil, mechanical, production, textile, chemical, IT and computer engineering. The introduction of these programs will be in two phases. Furthermore, increasing the intake of two existing PG courses is also planned. The starting of new programs will significantly increase enrolment in PG programmes in engineering disciplines. The addition of demand driven & Interdisciplinary PG programs will attract better qualified students. The addition of new equipment & learning from TEQIP funding will be reinforced by training of faculty and staff in relevant area for enhancing engineering research, development and innovation.

Following strategy would be adopted to fulfill the objectives of the programme:

- ◆ Addition of new PG courses in coming areas.
- ◆ Increase in intake of existing PG courses.
- ◆ Equity within faculty, staff and students through training.
- ◆ Up gradation of UG and PG courses.
- ◆ Enhancement in technological capabilities of the Institute.
- ◆ Increase in research activity.
- ◆ Increased networking activity with industry and other academic and research Institutes.
- ◆ Improving the academic performance of SC/ST/OBC/academically weak students.

The fund requirement over the project period, with year-wise break-up is given in below:

S.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.	4.125	0.125	1.500	1.500	1.000	0.000
	(ii) Updation of learning resources	0.375	0.050	0.150	0.100	0.075	0.000
	(iii) Procurement of furniture	0.250	0.020	0.180	0.050	0.000	0.000
	(iv) Modernization and strengthening of libraries and increasing access to knowledge resources	0.500	0.100	0.200	0.100	0.100	0.000
	(v) Refurbishment (Minor Civil Works)	0.375	0.020	0.200	0.155	0.000	0.000
2.	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	2.500	0.000	0.528	0.912	1.06	00
3.	Enhancement of R&D and institutional consultancy activities	0.625	0.005	0.200	0.270	0.100	0.050
4.	Faculty and Staff development for improved competence based on TNA	1.250	0.050	0.550	0.350	0.250	0.050
5.	Enhanced interaction with Industry	0.625	0.015	0.210	0.200	0.200	0.00
6.	Institutional Management Capacity enhancement	0.250	0.010	0.075	0.065	0.050	0.050
7.	Implementation of institutional reforms	0.125	0.005	0.05	0.045	0.025	0.000
8.	Academic support for weak students	0.250	0.000	0.070	0.070	0.060	0.050
9.	Incremental Operating Cost	1.250	0.040	0.300	0.350	0.500	0.060
	TOTAL	12.50	0.44	4.213	4.167	3.42	0.26

- 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 (see Annex-V of the PIP) carried out.
 - ✦ Based on SWOT analysis, provide the strategic plan developed for institutional development.
 - ✦ Show how the results of SWOT analysis are linked to the key activities proposed in the proposal.

VJTI is a large Institute composed of more than 12 departments, which includes major engineering as well as supporting departments. Considering the size and spread of the Institute, department-wise SWOT analysis was done. All the departments held brainstorming sessions for the same amongst faculty, supporting staff as well as post graduate students. All the Head of Departments encouraged students, faculty and staff in the brainstorming session to bring out information to determine the important Strengths, Weaknesses, Opportunities and Threats. Departmental TEQIP coordinators acted as facilitators encouraging an affable atmosphere for free flow of information in the brainstorming sessions. The results of the SWOT analysis were further used for finalizing the action plans for the individual departments. Results of the SWOT analysis done by each department were critically discussed in the meeting of the Heads of the Departments and Director, along with senior faculty of the departments. The final outcomes were presented and discussed in a meeting of all faculty members of the institute.

SWOT ANALYSIS

STRENGTHS

- ◆ **Brand Name**
 - More than 123+ old renowned Engineering Institute in India
- ◆ **Location**
 - Centrally located in Mumbai, a metropolitan city
- ◆ **BoG**
 - The BoG is comprised of eminent members - industrialists, Govt. representatives and eminent persons from academia ^(annexure V)
- ◆ **Recognition**
 - Won the prestigious IMC RBNQ PERFORMANCE EXCELLENCE TROPHY for 2009 in the education category
 - Among top ranking engineering institute of India , ranked 28 by outlook
- ◆ **Talent pool**
 - Attracts excellent students of the State
 - Active participation in various competitions, technical activities by motivated students ^(annexure VII)
 - Motivated and communicative students (VJTI amongst top 30 colleges in India, VJTI has got this award for 3 consecutive years)
- ◆ **Distinct knowledge delivery processes**
 - e-resources on the intranet accessible from anywhere on campus
 - Distance education through Edusat
 - Availability of state of art Instruments and equipments in various Labs
- ◆ **Social commitments**
 - JANEV movement for technology transfer
 - Training of the underprivileged ^(annexure XIII)
 - Teaching the weak students of municipal schools
- ◆ **Innovative and Creativity Cell**
 - Students motivated to innovate and present their ideas through projects at national level competitions ^(annexure XII)
 - Funding for model / demo of creative ideas
- ◆ **Academic activities**
 - Academic calendar
 - Course diary
 - Credit based grading system
- ◆ **Affordable tuition fees**
 - Low cost-high quality education
- ◆ **Curriculum development**
 - Curriculum designed to meet both local and international needs.
 - Implementation of national knowledge commission recommendations

- Curriculum containing;
 - o Strong basic science component
 - o Variety of general education courses
 - o Well structured laboratory experience
 - o Includes interdisciplinary component
 - o Demand driven elective courses
 - o Industry internship included
- Departmental advisory committees
 - o Every department has a departmental advisory committee comprised of external members which includes two from industry, two from academia, and two from alumni.
- ◆ **Student exposure to industry**
 - Industry internship assistance to student
- ◆ **Qualified faculty**
 - Motivated, research oriented and academically strong faculty
 - Sponsorship of faculty for qualification up-gradation
- ◆ **Industry institute interaction**
 - Very good relations with the industry through consultancy, project, testing and placement activity
- ◆ **Placements**
 - In campus placement for about 100% eligible students
 - Top ranking industries from all sectors like L&T, Tata Motors, Gammon, Microsoft, Morgan Stanley, Siemens, ABB etc visit for campus selection
 - Off campus placement for remaining students
- ◆ **Excellent facilities available**
 - Good infrastructure and academic ambience
 - Well equipped laboratory
 - Well equipped library with e-resources
- ◆ **Accreditation:-**
 - All 8 UG programmes accredited out of which 3 UG programme are again under process of accreditation after expiry of 5 years of accreditation.
 - 6 out of 12 of PG programmes accredited and two are in process of accreditation
- ◆ **Activities of students**
 - Chapters of professional student societies like SRA, SAE, IEEE, ISHRAE
 - Departmental student bodies like CESA, MESA, TSA, PESA, ACE, EESA
- ◆ **State of the art laboratories/centers**
 - Computational fluid dynamics laboratory
 - High voltage laboratory
 - Technical excellence center for manufacturing
- ◆ **Networking**
 - MoUs with various industries Nevis network, ESMECH Equipment Pvt. Ltd, New Tech Computer Pvt. Ltd., SIEMENS for research activity^(annexure VI)

- MoUs with top class Institutes like IIT(Bombay), Delaware University (USA), JBIMS, University of Technology De Belford(France) ,ITAMMA for research and other academic activities
- MoUs with top class R&D organization like BARC
- ◆ **Continuing education programme**
 - CEPs conducted for industry and academia professional
- ◆ **Availability of space**
 - a carpet area (29680.3 sqmts) more than required as per AICTE norms
 - additional FSI is available for future extension and expansion
- ◆ **Alumni**
 - Distinguished Alumni^(annexure XIV)
 - Active and vibrant alumni association
- ◆ **Incentive schemes for faculty**
 - Career advancement
 - Cash prizes for publications
 - Assistance for attending national & international conferences
- ◆ **Continuous evaluation, feedback and improvement**
 - System of continuous evaluation.
 - Well established system of feedback by students
 - Continued improvement by feedback from student & industry.
- ◆ **Performance in TEQIP-I**
 - The academic audit score improved from 6.0 to 8.0
 - The Institute was one amongst institutes selected for impact evaluation of TEQIP – I by NPIU
 - Several best practices have been introduced

WEAKNESSES

- ◆ **Availability of Faculty**
 - Non flexible recruitment policy for faculty
 - Non availability of Ph D qualified faculty in sufficient number
- ◆ **Availability of support and technical staff**
 - Outdated recruitment norms
 - Outdated promotion policy
- ◆ **Non Residential Campus**
 - No residence facility for faculty
 - Faculty & staff spending 3-4 hours a day in commuting
 - Hostel facility for only 20% of the students
- ◆ **Departmental library**
 - Departmental libraries needs enhancement
- ◆ **Central Library location**

- Central library needs a separate building with adequate area
- ◆ **Infant autonomy**
- ◆ **Inadequate funding**
 - Overall lack of funds for hiring adequate human resources, and maintaining and upgrading facilities.
- ◆ **Limited number of sophisticated instruments in some areas for PG programmes and research**

OPPORTUNITIES

- ◆ **Available expertise can be used for enhancing**
 - Business and technical analysis
 - Learning solutions, writing and content development,
 - Business and market research,
 - establishing training and education facility abroad
 - Intellectual property (IP) research
 - Data analytics,
 - Mentoring upcoming technical institutes
 - Training and consultancy.
 - Accredited laboratories
 - Testing with quality assurance
- ◆ **Demand for**
 - Integrated M Tech/B Tech programmes
 - Part time PG and Ph D programmes
 - M Tech/M.S. by research
 - Programmes through distance learning mode
 - Integrated Ph D
- ◆ **Setup of laboratories abroad for training and education**
- ◆ **VJTI campuses elsewhere**
 - In state
 - In India
 - Abroad
- ◆ **Increased industry interaction**
 - Development of laboratories in collaboration with industry
 - Industry sponsored laboratories
 - Industry sponsorship of students for research
 - Financial assistance to students by industry
 - Encouragement to in-house research in industry
- ◆ **Networking**
 - With other technical institutions for sharing resources
 - With R & D institutions
 - Industry for research & consultancy

- ◆ **Strong alumni base**
 - Increased R&D and consultancy activity
 - Contribution to corpus fund
 - Development of infrastructure
 - Involvement in institute academic activities

- ◆ **Needs of society**
 - Cost effective solutions for day to day problems
 - awareness programme for science and technology literacy
 - Technology transfer to industry as well as for social up gradation
 - Appropriate technology

- ◆ **Establishing a QIP center**
 - Provide Post graduate and doctoral programmes

- ◆ **Rapid advances in technology**
 - Short term programmes in emerging / interdisciplinary areas

- ◆ **Human resource demand by industry**
 - Human resource can be developed of highly professional and of international standards

THREATS

- ◆ **Competition from global players**
 - Difficulty in attracting best students
 - Retention of quality faculty
 - Matching infrastructure

- ◆ **Well equipped private research testing laboratories**
 - Loss of IRG opportunities

- ◆ **Limited Ph. D. qualified human resource availability**

- ◆ **Excellent salary package & perks from industry**
 - Non availability of faculty and quality PG students
 - Less attraction for teaching profession

STRATEGIC PLAN

The SWOT analysis and strategic plan was presented and discussed in a meeting of a committee comprising of the Director, Head of Departments, Deans and four experts from other academic institution. Based on the comments and discussion, the strategic planning for facing future challenges was worked out.

The strategic plan is as follows:

- A. Up-gradation of subject knowledge and competence
- B. Improving quality of teaching-learning
- C. Increasing research activity and improving quality of research
- D. Increasing output of PG students
- E. Increasing industry interaction
- F. Improving faculty student ratio
- G. Providing Residential facility to faculty and staff
- H. Increasing on campus accommodation for students
- I. Appreciating the performance faculty & staff

➤ **Lists of key activities that are planned to meet the demands of strategic plan**

A. Up-gradation of subject knowledge and competence

- Faculty deputation for qualification upgradation
- Faculty deputation for specific training programmes for knowledge enhancement
- Faculty deputation for industry exposure
- Deputation / training to the supporting staff

B. Improving quality of teaching-learning

- Modernization of laboratories
- Setting up a new laboratories
- Industry participation for curriculum development & delivery
- Preparing learning resources
- Technical / Support staff training
- Extensive use of available NPTEL web / Video Lectures from experts of IIT's.

C. Increasing research activity and improving quality of research

- Increasing enrolment of doctoral students
- Increasing quantity of sponsored research projects
- Increasing industry-institute interaction for applied research
- Starting of post graduate multidisciplinary programmes

D. Increasing output of PG students

- Increasing enrolment of PG students
- Commencing new PG programmes
- Expansion of Internet facility such as (wi-fi internet network)
- Motivating the PG students for paper Publication at International Journal or Conference
- Provision of Funding for attending the workshop or Conferences
- Exchange programme with foreign Universities or IITs

E. Increasing industry interaction

- Increasing applied research activity
- Conducting Continuing Education Programs
- Conducting Seminar / Conference
- Organizing site or Industry visits
- Arranging Industrial Experts' Lectures series
- Flexible Lectures or Practical Hours

F. Improving faculty student ratio

- Recruitment of Regular faculty
- Appointment of faculty on contractual basis
- Appointment of adjunct faculty

G. Provision for Residential facility to faculty and staff

- Provision of construction of Residential Quarters for faculty in Institute campus with Private Public Partnership Scheme.
- Financial help of interest free 10% home loan amount maximum up to Rs 1.0 lakh
- Encouraging formation of housing Society for staff / faculty

H. Increasing on campus accommodation for students

- Construction of new hostels
- Improving facilities in the existing hostel

I. Appreciating the performance of faculty & staff

- Providing additional increments in salary and provide value added facilities.
- Appreciation by awards or Certificates or tour package with family.
- Advertising the special achievements of staff on Notice board and on Web site

◆ Following are the immediate challenges which may hamper implementation of the strategic plan

- ◆ Requirement of Residential complex
- ◆ Shortage of Ph D qualified staff.
- ◆ Training level of support staff.
- ◆ Being old infrastructure, increased maintenance requirements.

◆ The vision, mission and values of the institution

Vision:

- To establish global leadership in the field of technology and develop competent human resources for providing service to society

Mission:

- To provide students with comprehensive knowledge of principles of engineering with the multidisciplinary approach that is challenging.
- To create an intellectually stimulating environment for research, scholarship, creativity, innovation and professional activity.
- To foster the relationship with other leading institutes of learning and research, alumni and industries in order to contribute to national and international development.

Values:

- Quality education.
- Integrity & ethics.
- Commitment to society.

2.3 State the specific objectives and expected results of your proposal in terms of, “Scaling-up Postgraduate Education and demand-driven Research & Development and Innovation”. These objective and results should be linked to the SWOT analysis.

SPECIFIC OBJECTIVES

After a careful review of SWOT analysis, specific objectives have been established to exploit strengths to harness the opportunities. A closer examination of the SWOT analysis reveals that the Strategic Plan should focus on the improvements that are related to students, teaching methods and faculty. Therefore, the following strategic objectives have been formulated:

- ↯ Attract, nurture and retain outstanding students
- ↯ Recruit, nurture and retain outstanding faculty and staff
- ↯ Promote a strong sense of team building among the students, faculty, staff and alumni
- ↯ Student centric, learning centric, knowledge centric education.
- ↯ Improve teaching and learning through continuous assessment
- ↯ Promote research and consultation that addresses the immediate and long-term needs of the society
- ↯ Build strong relationship with society in general and with industry & alumni in particular to cooperate and perform
- ↯ Continue to develop, improvise and maintain an adequate infrastructure
- ↯ Up gradation of the laboratories used for PG courses.
- ↯ Commence new PG programmes
- ↯ Mentoring academically weak students
- ↯ Ph. D. programmes in relevant areas.
- ↯ Establishment of innovation & incubation centre (IIC).

EXPECTED OUTCOMES

- Increase in PG and Ph. D. enrollment.
- Enhancement in input quality.
- Enhancement in output Quality.
- Increase in demand by quality PG students.
- Increase in research publications and patents.
- Interdisciplinary activities with team spirit.
- Up gradation of knowledge level and confidence among academically weak students.
- Retention of outstanding faculty.

JUSTIFICATION FOR INSTITUTION'S PARTICIPATION IN THIS SUB-COMPONENT

VJTI started post graduate education in Textile Technology in 1952 and subsequently kept on adding to its basket of programmes many other programmes on a continuous basis. Today it is running 13 Programmes and it has got approval from AICTE to run 15 programmes. No other Institute is offering so much variety to aspiring students of the University of Mumbai which has an undergraduate intake of 12000.

The Institute was selected as Lead Institute under TEQIP I and has received a grant of Rs.22.7 crores. The grant was effectively utilized which enabled us to strengthen our undergraduate programmes and employability of our graduates. The performance was rated by external auditors appointed by the World Bank. The Institute score increased from 6.0 in 2005 to 8.0 in 2008 thus showing remarkable progress and transformation as expected in the programme.

As mentioned earlier in this report, there is demand for large number of post graduates and no other Institute from this region is equipped to offer variety of specializations and take up

increased intake in existing programmes. Since the Institute was granted autonomous status by the State Government, conscious efforts are being made to change the focus of the Institute from 'a Teaching Institute' to a 'Research Institute' where teaching also takes place.

An association with TEQIP project will immensely benefit the Institute through the learning that will take place during interactions with other agencies involved in the process and through implementation of the action plan apart from the financial help it will provide to upgrade the resources, both human and material.

2.4 Provide an action plan for scaling-up enrollment into Masters and Doctoral programmes (include measures to attract qualified students and maintain high quality standards)

VJTI is committed towards enhancing post graduate education since last three decades. It has started with the M. Tech in Textile Technology in 1952 and has added 13 full time M. Tech courses to its bandwagon. The intake in M. Tech programmes has started from seven and rose to more than 300 till date.

Action Plan for Scaling up enrolment into Masters and Doctoral programmes

- By providing non GATE scholarship and research assistantship
- Making curriculum more industry orientated
- Increasing Industry – Institute Interaction through Seminars & Workshops
- Acquiring Sponsored projects for PG & Doctoral programmes
- Preparing Learning Resources
- Maintaining high quality academic standards
- Modifying the curriculum by introducing lab courses
- Incorporating industry relevant training for M. Tech. students.
- Introducing Industry oriented research projects
- Providing avenues for students in diversified fields by introducing new programs
- Commencing Part-time Masters and Doctoral programmes
- Funding to outstanding Ph. D students to attend international conferences
- Providing result oriented policies for academic support to weak students.

♦ **Following M. Tech. programmes are planned :**

Departments	M. Tech Programmes intended to be Introduced by July 2011
-------------	---

Electrical	<input type="checkbox"/> Electronics Engineering with specialization in VLSI and embedded systems.
Mechanical	<input type="checkbox"/> Mechanical Engineering with specialization in Thermal Engineering <input type="checkbox"/> Mechanical Engineering with specialization in Mechatronics
Information Technology	<input type="checkbox"/> Information Technology with specialization in Software Engineering
Civil	<input type="checkbox"/> Civil Engineering with specialization in Infrastructure Engineering and Management
Structural	<input type="checkbox"/> Structural Engineering with specialization in Structural Design (by Research)
Interdisciplinary	<input type="checkbox"/> Value Engineering
Interdisciplinary	<input type="checkbox"/> Robotics & Automation

Departments	M. Tech Programmes intended to be Introduced by July 2012
Computer	<input type="checkbox"/> Computer Engineering with Specialization in Information Technology Security (ITS)
Textile	<input type="checkbox"/> Textile Technology with Specialization in Advanced Textile Materials
Interdisciplinary	<input type="checkbox"/> Civil Engineering with Specialization in Sustainable Environment
Production	<input type="checkbox"/> Production Engineering with specialization in Manufacturing science and Automation
Chemistry	<input type="checkbox"/> Chemical Technology with Specialization in Quality Control
Electrical	<input type="checkbox"/> Electrical Engineering with specialization in High Voltage Technology (by research) - Joint Programme
MCA	<input type="checkbox"/> M. Sc. (Computer Science) by research

◆ **Increasing intake in existing PG programmes over and above the sanctioned seats.**

Following is the existing PG course which is in demand and therefore by scaling up the intake of this course the enrollment in the PG courses could be increased

S.No	Course	Year of start	Current intake	Proposed Increase in Intake
1.	Electronics & Telecomm.	2005	15	36

Commencing part time PG programme

Following is the existing fulltime PG course which is in demand from working professionals and hence would be started as part time programme

S.No	Course	Year of start	Current intake	Proposed Increase in Intake
1.	Civil Engineering with specialization in Construction Management	1960	18	36

S. No.	Key Activities	Project Months (starting From Nov 2010)															
		1-3	4-6	7-8	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
		Nov 2010– Jan 2011	Feb-April	May - July	Aug- Oct	Nov2011–Jan 2012	Feb-April	May - July	Aug- Oct	Nov2012–Jan 2013	Feb-April	May - July	Aug- Oct	Nov2013 - jan 2014	Feb-April	May - July	Aug- Oct
1.	Submitting proposal to AICTE for new PG programme.																
2.	Submitting proposals for joint M.Tech and Ph.d with other Universities/ Institute.																
3.	Development of new laboratories (civil Works).																
4.	Procuring of equipment																
5.	Training of faculty & staff																
6.	Restructuring of curricula																
7.	Faculty recruitment																
8.	Proposal to AICTE for Increase in intake for existing PG programmes																
9.	Proposals for Introduction of part-time PG and Doctoral programmes																
12.	Conduct of remedial classes & finishing school for academically weak students																

2.5 Provide an action plan for improving collaboration with Industry.

An action plan for improving collaboration with Industry.

- ✦ MoU with industry for PG students project work
- ✦ MoU with Short term & long term / Exchange programmes
- ✦ Dissertation topics with industry deputation
- ✦ Industry Sponsored laboratory
- ✦ Industry sponsored faculty positions
- ✦ Starting of M. Tech by Research
- ✦ Starting of part time M Tech and PhD programmes
- ✦ Continuing Education Programme with industry experts (CEP).
- ✦ Sharing of research and manufacturing facilities with industries
- ✦ Development of new products or systems with an association of industry
- ✦ Introducing industry run audit courses to PG students

Sr. No.	Key Activities	Project Months (starting From Nov 2010)															
		1-3	4-6	7-8	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
		Nov 2010– Jan 2011	Feb-April	May - July	Aug- Oct	Nov2011–Jan 2012	Feb-April	May - July	Aug- Oct	Nov2012–Jan 2013	Feb-April	May - July	Aug- Oct	Nov2013 - Jan 2014	Feb-April	May - July	Aug- Oct
1.	MOU with industry for various activities																
2.	Industry problem based projects																
3.	Development of new products or systems with an association of industry																
4.	Proposal for Part time Phd Programmes to university																
5.	Proposal Part Time M.Tech Programmes to AICTE																
7.	CEP																

2.6 Provide an action plan for:

- ✦ quantitatively increasing and qualitatively improving research by their faculty

individually, jointly and collaboratively,

Following is the action planned for quantitatively increasing and qualitatively improving research by our faculty individually, jointly and collaboratively.

- Collaboration with industry to do projects
- Training to faculty in research methodology
- Faculty motivated and funded for presenting paper in seminars, conferences and symposia
- Applications to agencies like CSIR, BRNS, DST, AICTE for taking up government sponsored research projects
- Incentives or sponsorships to faculty for referred journal publications.

◆ developing research interest among undergraduate students, and

Following is the action planned for developing research interest among undergraduate students:

- Exposure to the Research environment of IITs, NIITs and other Research organisation – Research labs of National Importance as NEERI / BARC / TIFR
- Exchange programmes with national & international technical universities/institutions
- Award for the best undergraduate student showing research acumen
- Involving the undergraduates to help the postgraduate and PhD research students
- Conducting workshops for students regarding research.
- Research orientation among the UG students by deputation during summer / winter vacation.
- Incentives to students that voluntarily associate with industry oriented R & D Project.
- Travel cost of student that associate with industry for about three four weeks during vacation to continue work on R & D projects.

◆ collaborating with Indian and foreign institutions in academic and research area through MoUs

Following is the action planned for collaborating with Indian and foreign institutions in academic and research area through MoUs:

- Planning of visiting other research Institutes or foreign universities
- Studying the foreign education pattern and trying for collaboration with these institutes or universities
- Networking Institute relationship.
- Research collaboration among individual faculty of other institution will be extended to MoU between the Institutes

2.7 Attach the summary of Training Needs Analysis carried out. Also, provide Faculty Development Plan from the first 18 months to achieve improved competence based on Training Needs

Analysis (TNA) in the following areas.

- o Basic and advanced pedagogy training
- o Subject / domain knowledge enhancement
- o Attendance in activities such as workshops, seminars, etc.
- o Improvement in faculty qualifications.
- o Improving research capabilities

Training needs analysis

To improve the quality of education imparted through various programmes it is essential that all the faculty and staff involved are trained for;

- ◆ Improvement in effective knowledge delivery processes
- ◆ Enhancement of domain knowledge
- ◆ Current and upcoming trends in subject areas
- ◆ Research methodologies
- ◆ Analytical tools and techniques
- ◆ Report preparation and presentation

To identify needs of individual departments and individuals therein, a systematic and scientific training needs analysis survey is carried out. Meetings of the faculty, support staff and technical staff at the departmental level enabled the departments to identify the needs to equip them to help departments to meet their objectives. An attempt is also made to identify the trainers / training organizations for the specific areas and same are indicated below.

It is assumed that for training in the general areas like, motivation, attitudinal change, personality development etc. shall be imparted during specific training programmes organized for TEQIP institutes through select agencies by SPFU.

The training needs analysis survey has clearly shown that faculty is interested to undergo training in various areas to continuously upgrade themselves to equip themselves to perform better.

Pedagogical training and training in Counseling shall be provided to all faculty members including those on contract. Young faculty members will also be trained in communication skills.

Training to Heads, Deans shall cover;

- Management capacity development
- Motivational & attitudinal change
- Exposure to centres of
- Domain knowledge enhancement
- Industry / R & D exposure
- Planning & implementation
- Budgeting & Financial management
- Counselling

Training to Faculty shall cover:

- Motivational and attitude change
- Effective teaching-learning processes
- Research methodologies & report preparation
- Domain knowledge enhancement

- Student counseling
- Industry exposure

2.8 Provide an action plan for training technical and other staff in functional areas.

The training needs analysis survey has clearly shown that staff is interested to undergo training in various areas to continuously upgrade themselves to equip themselves to perform better. Training in motivation & attitudinal change, personality development and communication skills shall be provided to all support/technical/administrative/accounts staff of the Institute.

Training for technical staff shall cover:

- Motivation & Attitudinal change
- Personality development
- Upkeep & maintenance & calibration of instruments
- Record keeping
- Communication skills
- Trade knowledge
- Industry / R&D exposure

Training for technical staff shall cover:

- Motivation & Attitudinal change
- Personality development
- Record keeping & computer applications
- Communications skills

Training for Class IV includes:

- Motivation & Attitudinal change
- Personality development
- Safety and Equipment maintenance

To provide the training to the expectations of the participants and of this project, suitable trainer organizations / Experts are identified.

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

The state of Maharashtra always has bifocal approach of expansion and excellence. In the pursuit of this, state has wholeheartedly participated in TEQIP-I and successfully implemented this project in 17 Institutes. VJTI being a TEQIP 'Lead Institute' also worked in close collaboration with its networking Institutes/partners. The auditing of the TEQIP-I activities was carried out continuously on the half yearly basis by external World bank appointed auditors. Institute has maintained a high ranking for complete tenure

**TEQIP Audit Rating:
(By World Bank appointed External Auditors)**

Audits	Dates	Overall Scores
1 st Audit	October 2005	6.0
2 nd Audit	August 2006	6.3
3 rd Audit	October 2006	6.7
4 th Audit	April 2007	7.2
5 th Audit	Sept 2007	7.2
6 th Audit	March 2008	7.8
7 th Audit	Sept 2008	8.0

The VJT Institute have shown remarkable progress and the transformation took place as expected by the state. As per the state guidelines the institute acquired the autonomy from the Mumbai university. The quality improvement of academics in the institute is being taken in tune with the road map shown by the state Higher and Technical Education Department. The Institute will join hands with the state to support its policies for ensuring quality education being imparted to students. The state has recently planned establishment of Technological University for which the Institute will always be available for strategic support. The acute shortage of Ph d qualified faculty has made necessary for the Institute to think for Quality Improvement Center. The VJT Institute have continued good practices of TEQIP -I. The Institute will always strive to add to these practices and fine tune earlier policies.

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

A meeting of the Heads of the Departments and Director, along with Deans was called to brief about the objectives and scope of TEQIP – II project. Eligibility of the Institute to participate was verified. In the next meeting, few senior faculties were also invited for discussion. Brain storming sessions were conducted to collect information useful for preparation of plan for a Project. . The HoDs conducted meetings with faculty members in respective department for getting suggestions for proposal preparation and implementation. The ideas were again represented by HoD's in the institute level meetings. The final draft was then presented to all faculty members of the institute and suggestions were incorporated.

2.11 Describe the institutional project implementation arrangements.

Following are arrangements are available in the Institute as per requirement of the project:

S. No	Requirements	Arrangements in the Institute
1.	Board of Governors (BoG)	VJTI is governed by the Board of Governors (BoG) composed of 14 members, including the VJTI Director, all appointed by the Government of Maharashtra. The BoG meets quarterly, sets the budgetary and academic framework and policy decisions, under which VJTI operates. The BoG is responsible for all the policies related to VJTI's physical, financial and personnel affairs.
2.	TEQIP office	The TEQIP office is situated at a central place in the institute. The project coordinator and nodal officers for TEQIP –II are appointed.
3.	Admission of students based on merit as per State/GoI Admission Policy (as applicable) on common entrance examination, counselling, and reservation	Applications are accepted at ARC throughout the state. Merit list is generated and admission offered through counseling process at centralized place.
4.	Determine own curricula, course content, curricula implementation and methods of training	By Institute taking into consideration the feedback from stake holders such as Industry, students, faculty and alumni
5.	Develop credit based curriculum	Yes, since 2004
6.	Permit credit exemption for previous attainments	Credits earned from IITs and Network partners such as COEP, SGGS Nanded and Walchand college of engineering Sangli are considered as valid credits.
7.	Introduce flexibility in the curriculum with choice of electives	Yes, Ample number of electives are introduced from sixth semester onwards for UG. For PG in both the semesters (I & II) electives are introduced.
8.	Evolve new methods of summative evaluation and their frequency, conducting examinations and declaring results	Evaluation is done through class test, quizzes, surprise tests, Mid semester tests and end semester tests. Weightage for in-semester evaluation is 40% and End semester test 60%. Results are declared within 10 days after end semester examination.
9.	Develop new methods of formative and internal evaluation as per advice from Experts	In semester evaluation has been carried out by assignments, surprise tests, quizzes, presentations, tests, viva- voce. Use of internet and LRS available through NPTEL are encouraged by keeping 3 hours slot in the time table.
10.	Add value addition courses as per market demand	Electives such as piping technology, CFD and value engineering are introduced taking into consideration the views from industry and R&D organizations.
11.	Develop an effective system for faculty evaluation by students.	Online faculty evaluation by the students is done at the end of the semester. Few courses on the basis of class average are selected by the APEC bodies for audit by external experts (two per course).
12.	Start new courses, new programmes and re-orient and restructure or delete existing programmes	Institute Vision for 2015 is prepared and approved by BoG. Main focus is on the PG courses and Institute is planning to double the existing PG courses.
13.	Introduce innovations in teaching/learning processes through controlled experimentation	Independent lab courses are introduced in the new scheme so that due weight age be given to practical implementation of the theoretical concepts.
14.	Conduct Continuing Education, Distance Learning and e-Learning and skill enhancement programmes as per market needs	Lectures from eminent professors from India and abroad are placed on the intranet of the institute along with approximately 1500 courses from NPTEL. Institute is planning to develop E-Learning resources of the institute faculty by recording the lectures. Initiative has been started by recording mathematics lectures.
15.	Enter into collaborative arrangements with outside bodies /experts for curricula development, employment oriented value addition to courses, new teaching learning methodologies and innovations	Institute signed Mou with IIT Mumbai, University of Delaware, USA, De-Belford, France. Advisory committee plays important role in these activities consists of industry personnel, academicians, distinguished alumni and retired professors from the department. Innovation and creativity cell is formed to nurture innovative ideas of the new comers (1st year students).
16.	Depute faculty for academic advancement	Yes, 13 faculties are deputed to reputed institutes in India and abroad.
17.	Develop faculty training needs assessment scheme in line with academic requirements and institutional objectives	Yes, exhaustive Training need analysis for Teaching and technical staff has been carried out at department levels and field of interest are identified keeping in view the requirements of curriculum.
18.	Inviting experts including Industry experts for special lectures	Special Lectures are conducted by Industry experts every Wednesday

2.12 Provide an institutional project budget in Table No.34.

Table-34:

Institutional Project Budget for Sub-Component 1.2

Note: For details of permissible and non-permissible expenditures, please see Table-18 (for Government funded and aided institutions) and Table-19 (for private unaided institutions)

(Rs. In Crore)

S.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.	4.125	0.125	1.500	1.500	1.000	0.000
	(ii) Updation of learning resources	0.375	0.050	0.150	0.100	0.075	0.000
	(iii) Procurement of furniture	0.250	0.020	0.180	0.050	0.000	0.000
	(iv) Modernization and strengthening of libraries and increasing access to knowledge resources	0.500	0.100	0.200	0.100	0.100	0.000
	(v) Refurbishment (Minor Civil Works)	0.375	0.020	0.200	0.155	0.000	0.000
2.	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	2.500	0.000	0.528	0.912	1.06	00
3.	Enhancement of R&D and institutional consultancy activities	0.625	0.005	0.200	0.270	0.100	0.050
4.	Faculty and Staff development for improved competence based on TNA	1.250	0.050	0.550	0.350	0.250	0.050
5.	Enhanced interaction with Industry	0.625	0.015	0.210	0.200	0.200	0.00
6.	Institutional Management Capacity enhancement	0.250	0.010	0.075	0.065	0.050	0.050
7.	Implementation of institutional reforms	0.125	0.005	0.05	0.045	0.025	0.000
8.	Academic support for weak students	0.250	0.000	0.070	0.070	0.060	0.050
9.	Incremental Operating Cost	1.250	0.040	0.300	0.350	0.500	0.060
	TOTAL	12.50	0.44	4.213	4.167	3.42	0.26

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

Table-35

Project Targets for Institutions under Sub-Component 1.2

S. No.	Deliverables	Baseline	Targets to be achieved	
			At the end of 2 years of joining the Project	By Project closing
1.	Number of students registered for			
	(a) Masters in Engineering programme	222	300	350
	(b) Doctoral Programme in Engineering	24	36	50
2.	Revenue from externally funded R&D projects and Consultancies in total revenue (Rs. in lakh)	128.45	200	300
3.	Number of			
	(a) Research publications in refereed journals			
	• National journals	9	18	36
	• International journals	17	25	40
	(b) Citations	10	25	40
	(c) Patents obtained / filed	03	05	07
	(d) Books	0	02	05
	(e) No. of R&D projects commercialized	0	03	05
4.	IRG as % of total recurring expenditure	53.08	60	72
5.	Number of co-authored publications in refereed journals			
	(a) National	02	10	25
	(b) International	05	10	20
6.	Student credentials			
	(a) Campus placement rate of			
	• UG students	100%	100%	100%
	• PG students	13% ¹	25%	50%
	(b) Average salary of placement package for (Rs. in lakh)			
	• UG students	3.5	5.0	6.0
	• PG student	3.5	6.0	7.0
7.	Number of collaborative programmes with Industry	03	At least 2	03
8.	Accreditation Status (obtained and applied for)	5 UG ²	At least 75% of eligible UG programmes and 60% of eligible PG programmes	100% for UG and PG programmes
		6 PG		
9.	Vacancy position for faculty and staff	10%	Vacancy reduced to 5% or less	Zero vacancy
10.	Percentage of regular faculty with PhD in Engineering disciplines	16%	At least 20%	At least 25%
11.	Any other (maximum three)			
a	Faculty with post doctoral	01	02	04
b	Adjunct professors	01	03	06
c	Emeritus Fellow	01	03	06

(Note : The accreditation targets for Undergraduate and Postgraduate programme are for NBA Accreditation of programmes.)

1. *By industry, rest are absorbed by educational institutes or pursue higher studies.*
2. *All 8 UG programmes were accredited once. 5 UG programmes are accredited again and 3 UG programmes are under process of accreditation after completion of 5 years of accreditation period.*

2.13 (b) Describe the Plan in detail for achievement of the above targets enumerated in Table-35.

- ◆ **Number of students registered for masters in engineering programme & doctoral programme in Engineering**
 - ↯ Commencing new PG programmes (as per table given in 2.4)
 - ↯ By providing Non GATE scholarship and research assistantship
 - ↯ Making curriculum more industry orientated
 - ↯ Maintaining high quality academic standards
 - ↯ Modifying the curriculum by introducing lab courses
 - ↯ Incorporating industry relevant training for M. Tech. students.
 - ↯ Introducing Industry oriented research projects
 - ↯ Providing avenues for students in diversified fields by introducing new programs
 - ↯ Commencing Part-time Masters and Doctoral programmes

- ◆ **Revenue from externally funded R&D projects and Consultancies**
 - ↯ Project jointly & collaboratively by faculty with industry
 - ↯ Taking up government sponsored research projects by the agencies like CSIR, BRNS,DST, AICTE.
 - ↯ Setting up Industry Sponsored laboratory
 - ↯ Sharing of research and manufacturing facilities with industries

- ◆ **Research publications in refereed journal, Citations, Patents registration, Books writing, commercialization R&D projects**
 - ↯ Faculty motivated and funded for presenting paper in seminars, conferences and symposia.
 - ↯ Incentives or sponsorship to be given to faculty for refereed journal publications.
 - ↯ Motivating the PG students for paper Publication at International Journal or Conference
 - ↯ Provision of Funding for attending the workshop or Conferences

- ◆ **Enhancing IRG**
 - ↯ Increased consultancy, sponsored research and training
 - ↯ Conduct of CEPs

- ◆ **Number of co-authored publications in refereed journals**
 - ↯ MOU with industry for PG students & faculty with Short term & long term / Exchange programmes
 - ↯ Industry given Dissertation topics

- ◆ **Campus placement and pay package**
 - ↯ MOU with industry for PG students & faculty with Short term & long term projects/training leading to their being absorbed into the industry
 - ↯ Dissertation topics with industry deputation
 - ↯ Make curriculum industry oriented by
 - Modernization of laboratories
 - Setting up a new laboratories
 - Industry participation for curriculum development & delivery
 - Technical / Support staff training
 - Extensive use of available NPTEL web / Video Lectures from experts of IIT's.
 - ↯ Measures to improve employability of students

- Organizing Communication skills development workshop using language laboratory
- Organizing Personality development programmes in collaboration with leading institutes.
- Management practices and entrepreneurship development through e-cell.
- Conducting specialized soft skills and professional skills development training
- Arranging Group discussions/Mock interviews.

◆ **Number of collaborative programmes with Industry**

- ↯ MOU with industry for joint research
- ↯ Industry sponsored faculty positions
- ↯ Continuing Education Programme with industry experts (CEP).
- ↯ Sharing of research and manufacturing facilities with industries

◆ **Accreditation Status**

- ↯ Applying for accreditation
- ↯ Evaluate the quality of UG and PG course for accreditation

◆ **Vacancy position for faculty and staff**

- ↯ Carry out continuous recruitment process
- ↯ Appointment of adjunct faculty
- ↯ Appointment of contractual faculty

◆ **Percentage of regular faculty with PhD in Engineering disciplines**

- ↯ Sponsoring faculty for pursuing PhD under QIP
- ↯ Signing MOU with foreign universities for sending faculty for PhD

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

Action plan to ensure that the project activities would be sustained

- ◆ Increase in research publications and patents
 - The increase in R&D activities due to TEQIP – II will ultimately lead to increase in IRG which will provide sustainability to all activities started under the programme
- ◆ Continuous assessment of PG courses over a period of time as per market demand
 - The scaling up of PG and Ph D will be sustained with addition of new courses and removal of obsolete courses. This activity will continue over a time period as per demand.
- ◆ Thriving for excellent input & Quality output
 - The quality education due to progression in knowledge of faculty and staff will lead to quality output by the students. This will increase job opportunities of the students and will attract more good quality students for PG.
- ◆ Up gradation of knowledge level and confidence among academically weak students
 - This activity will be continued with formation of a cell to monitor the finishing schools and remedial measures even after completion of the project.

2.15 Provide Procurement Plan for the first 18 months for Goods and Civil Works in Table-36 and Consultant Services in Table-37 with budget and timeframe.

Please refer page nos. 32-33.

2.16 Provide any other information related to special academic achievements of the institution.

Please refer annexure X.

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.

Following is the action plan

- ◆ Identification of academically weak students
- ◆ Formation of central cell for conducting and monitoring programmes for benefit of SC/ST/OBC/academically weak students
- ◆ Mentors for counseling.
- ◆ Student adoption by faculty/Alumni
- ◆ Organizing Communication skill development workshop using language laboratory
- ◆ Organizing Personality development programme.
- ◆ Management practices and entrepreneurship development through e-cell.
- ◆ Summer Term opportunity
- ◆ Conducting specialized soft skills and professional skills development training
- ◆ Arranging Group discussions/Mock interviews.
- ◆ Remedial classes and coaching for the subjects identified as difficult during the semester
- ◆ Conduct of summer term.
- ◆ Mentoring by selected senior students.
- ◆ Appointment of expert counselors
- ◆ Interactive learning
- ◆ Partnering with other Institutes like IUPUI for academic mentoring

Work plan for holistic mentoring of academically weak students in collaboration with

national and international partners.

Collaboration with Department of Computer & Information Science at Indiana University – Purdue University Institute (IUPUI) for holistic mentoring academically weak Students:

1. A joint program is being proposed by Department of Computer & Information Science at Department of Computer & Information Science Indiana University – Purdue University Institute - USA , VJTI - India and NIIT – Calicut - India for taking care of academically weak or drop out students.
2. The mentoring will be done on holistic manner where addition academic mentoring along with the social and psychological mentoring will be done.
3. A year long project time line for the program for the same has been charted from July 2011 to June 2012 extendible for further years.
4. The Project Timeline as follows :

Year 1: Initial Planning and Development

July 2011	August 2011	September 2011	October 2011
Academic year begins in India. IUPUI Team Members Visit VJTI (Mumbai) for Project Planning. Review proposal and evaluation instruments	Academic year begins at IUPUI. Recruitment process begins for IUPUI undergraduates for start (goes through June 2011).	IUPUI and VJTI faculty exchange student projects, assessment tools to begin course alignment (ongoing through December).	Web-based chats with IUPUI/VJTI faculty and staff regarding curriculum alignment and student activity collaborations.
November 2011	December 2011	January 2012	February 2012
IUPUI/VJTI explore technological means to share student activities.	Curriculum alignment and student assessments	Student activities framework established and evaluated.	Psychological instruments given to VJTI students.
March 2012	April 2012	May 2012	June 2012
Evaluation instrument Review of psychological instrument scores & experience from VJTI.	Partners arrange for Fall 2012 academic schedules.	IUPUI team visits VJTI to confirm plans, faculty discuss final arrangements for next term courses.	Results of VJTI psychological instrument scores, and revision of instruments

Table 36

18month Procurement Plan for Works and Goods* for Sub-Component 1.2

Name of the institution with location: **VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MATUNGA MUMBAI – 19.**

Package No.	SI No.	Activities	Description of Works/ Goods	Estimated Cost (Rs) in Lacs	Method of Procurement	Design/ Investigation Completion/ Specification Finalization (Date)	Estimate Sanctioned (Date and Value in Lacs)	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.	Procurement	Lab Equipments (Goods)	14.00	Tender	30.09.2010	05.10.2010 14.00	21.10.2010	30.10.2010	01.11.2010	25.11.2010	05.12.2010	05.03.2011
	2	Works	Refurb. & partitioning (Civil)	0.20	Local Inquiry	07.12.2010	09.12.2010 0.20	09.12.2010	19.12.2010	21.12.2010	05.01.2010	10.01.2010	12.02.2010
	3	Furniture	Furniture (Goods)	0.20	Local Inquiry	05.01.2010	09.12.2010 0.20	09.12.2010	19.12.2010	21.12.2010	05.01.2010	10.01.2010	12.02.2010
	4	LRs & Books	Library Books	0.50	Proprietary	01.12.2010	10.12.2010 0.50	-	-	-	-	01.01.2011	20.01.2011
2	1.	Procurement	Lab Equipments (Goods)	65.00	Tender	25.03.2011	05.04.2011 65.00	20.04.2011	30.04.2011	05.05.2011	30.05.2011	10.06.2011	15.09.2011
	2	Works	Refurb.,partiti oning & basements (Civil)	10.00	Tender	15.06.2011	25.06.2011 10.00	20.07.2011	30.07.2011	01.08.2011	16.08.2011	25.08.2011	15.09.2011
	3	Furniture	Furniture (Goods)	8.00	Tender	15.05.2011	20.05.2011 8.00	25.05.2011	05.06.2011	10.06.2011	26.06.2011	30.06.2011	30.08.2011
	4	LRs & Books	Library Books	20.00	Proprietary	01.05.2011	15.05.2011 10.00	-	-	-	-	01.06.2011	05.08.2011
3	1.	Procurement	Lab Equipments (Goods)	85.00	NCB	10.10.2011	20.10.2011 85.00	05.11.2011	15.11.2011	20.11.2011	20.12.2011	10.01.2012	31.03.2012
	2	Works	Refurb.,partiti oning & basements (Civil)	10.00	Tender	05.12.2011	15.12.2011 10.00	25.12.2011	05.01.2012	10.01.2012	31.01.2012	10.02.2012	10.03.2012
	3	Furniture	Furniture (Goods)	10.00	Tender	10.12.2011	15.12.2011 10.00	01.01.2012	10.01.2012	15.01.2012	31.01.2012	10.02.2012	31.03.2012
	4	LRs & Books	Library Books	15.00	Proprietary	01.12.2011	10.12.2011 15.00	-	-	-	-	01.01.2012	31.03.2012

Table 37**18 month Procurement Plan for Consultant Services for Sub - Component 1.2**Name of the institution with location: **VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE, MATUNGA MUMBAI – 19.**

S.No.	Activities	Description of Services	Estimated Cost (Rs)	Methods of Selection @	TOR Finalization (Date)	Advertisement (Date)	◆RFP Final Draft to be Forwarded to the Bank (Date)**	No Objection from the Bank for RFP (Date)**	RFP Issued (Date)	Proposals Received (Date)	Evaluation (Date)	No Objection by the Bank (Date)**	Contract Value and Date of Award	Contract Completion (Date)
1.	Consultancy For Civil Work	Refurbishment	0.005	Local Enquiry	01.11.2010	-	10.11.2010	20.11.2010	-	-	-	-	01.12.2010	31.03.2011
2	Industry Intraction	Liassion between Institute & Industry	12.00	Interview with advertisement	01.04.2011	02.04.2011	02.04.2011	12.04.2011	-	-	-	12.04.2011	01.05.2011	31.03.2012
3	Industry Experts Lectures	Experts in identified area of PG & research	6.00	Through Liassion appointed	01.04.2011	-	-	-	-	-	-	10.04.2011	15.04,2011	31.03.2012

Proposed list of equipments purchased for 18 months from the start of the project

Sr No.	Name Of The Department	Name of the Equipment	Approximate Cost in Rs. (Lakhs)
01	Electrical	Process Simulator	10
		Synopsys	6
		Logic Analyzers	8
		Hardware development system for 32 bit microprocessors	20
		Evaluation boards	2
02	Mechanical	Industrial Robot	25
		CNC Milling Machine	30
		Thermo Gravimetric Analysis	20
		Pneutrainner (pneumatics, Electro-pneumatics)	30
		MAP-200(Manipulation systems)	20
03	Production	Wire Cut EDM	15
		EDM (Electro Discharge Machining)	18
		ECM (Electro chemical machining)	12
		LBM (Laser beam machining)	12
		MIG (Metal Inert Gas Welding)	5
		TIG Welding(Tungsten Inert Gas Welding)	5
		CMM (Co-ordinate measuring machine)	12
		VMC (Vertical Machining Centre)	15
		Tool Pre-setter	5
		CNC Hydraulic Press Machine	10
		Table top Scanning Electron Microscope	30
04	Central Facility (Soft wares)	ETAP, PSCAD-EMTDC, LORENTZ, PSPICE, MATLAB, MATHCAD, Power system soft wares	60
		PLM Software; Viz. Team Centre	10
		CAM software; viz. MasterCAM, CIMATRON	5
		Manufacturing system simulation software- viz. ARENA, WITNESS, Pro-Model	5
		CNC Programming software; Viz. Sinutrain, CNCMill	5