UTTAR PRADESH TEXTILE TECHNOLOGY INSTITUTE

(Formerly Known as Government Central Textile Institute)

An autonomous institution of U.P. Govt. and Affiliated with UPTU Lucknow

उत्तर प्रदेश वस्त्र प्रौद्योगिकी संस्थान

11/208, Souterganj, Parwati Bagla Road, Kanpur - 208001

संo 5156-57 दिनांक : 01 / 03 /2017

To,

Dr. Rita Goyal

Sr. Consultant (Academic)

National Project Implementation Unit (NPIU)

EDCIL House, 4th Floor, Plot No. 18-A, Sector 16-A

NOIDA-201301, Uttar Pradesh

Subject: Regarding Institute Development Proposal TEQIP- III under Sub component 1.1

Madam,

In reference to your E-mail dated 20 January 2017 regarding TEQIP-III, we are sending herewith the Institute Development Proposal of Rs 1499.42 Lakh along with Annexure in compliance with the Enabling Mechanism for your kind perusal in this regard.

Thanking You,

Yours Truly

(Dr. D. B. Shakyawar)

Director

c.c.: Chief Coordinator, SPFU, TEQIP, IET Campus, Lucknow

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TECHNICAL EDUCATION
QUALITY IMPROVEMENT PROGRAMME
TEQIP - III

Institutional Development Proposal (IDP)
for
Sub-component 1.1:
Institutional Development for Participating Institutions

(PHASE III)

Proposal Amount: Rs 1499.42 Lakh

Submitted By:

UTTAR PRADESH TEXTILE TECHNOLOGY INSTITUTE

11/208, Parbati Bagla Road, Souterganj,

Kanpur-208001, Uttar Pradesh

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1. INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity

- Name and address of the Institution : Uttar Pradesh Textile Technology Institute, Kanpur
  11/208, Parbati Bagla Road, Soutergang
  Kanpur, Uttar Pradesh -208001
- Year of establishment : 1914
- Is the Institution AICTE approved? : Yes/No**: Yes**

  Furnish AICTE approval No. **: F.No. Nothern/1-2812787218/2016/EOA**

- Type of Institution : Govt. Funded/ Govt. Aided/NIT : **Govt Funded**
- Status of Institution : Autonomous Institution Status by UGC/Non-autonomous/ Technical University/ Deemed to be University or University Engineering Faculty/ Department/ Constituent Institution: **Autonomous Status by UGC**
- Name and Designation of Head of the Institution (Full time appointee) : **Dr. Dinesh Babu Shakyawar**
  Director

1.2 Academic Information:

- **Engineering UG and PG programmes offered in Academic year 2016-17:**

S. No	Title of programmes	Level (UG, PG, PhD)	Duration (Years)	Year of starting	AICTE sanctioned annual intake	Total student strength in all years of study
1	Textile Chemistry	UG	04	1956	60	242
2	Textile Technology	UG	04	1956	40	180
3	Man Made Fibre Technology	UG	04	1976	60	187
4	Textile Engineering	UG	04	2005	40	165
5	Textile Technology	PG	02	1986	12	13
6	Textile Chemistry	PG	02	2005	18	05

- **NBA Accreditation Status of UG and PG programmes as on 31st December 2016:**

Total no of programmes eligible for accreditation (at least one batch pass out):**06**
No. Of programmes accredited: **Nil**
No. Of programmes applied for accreditation: **04**

	Present Status: Number of 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 Discipline		Supporting Discipline (Physics.		Engineering Discipline		Supporting Discipline (Physics.		Engineering Discipline		Supporting Discipline (Physics.				
	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 = (2+4+6+8+10+12)	15 = (1-14)	16 = (3+5+7+9+11+13)
27	**07**	**00**	**03**	**00**	**06**	**05**	**01**	**03**	**00**	**00**	**00**	**00**	**17**	**10**	**08**

- **Status of Faculty Associated with Teaching Engineering Students (Regular & Contract) as on 31st December 2016:**

  R- Regular, C= Contract

2 Institutional Development Plan (IDP)

2.1 EXECUTIVE SUMMARY

Institute has following Vision and Mission.

VISION of UPTTI

To Grow as a Global Center of Excellence in Textile Education and Research for Up-liftment of Industry and Society

MISSION OF UPTTI

To Produce High Quality Graduates who would be able to cater to the present day industry having cutting edge technology and to make them able to cope up with the highly demanding society with the combination of strong character and knowledge.

By systematic transformation for excellence, demand drawn, quality-conscious, futuristic and responsive to changes in the market, empowering the faculty with better facilities and opportunities for R&D, very significant improvement in the overall functioning and academic ambience will be achieved. In view of the extra-ordinary quantitative growth in the number and variety of engineering institutions and programmes, the institution also need to get accredited which is possible only after improving the overall infrastructure.

The institution established in the year1914 as a school of dyeing, later in the year of 1937 it was converted into Government Textile Institute and named as Government Central textile Institute and started its diploma programme in Textile Manufacture and Textile Chemistry. In the year of 1958 four year B. Tech courses in Textile Technology and textile Chemistry were started. In the year of 1976 B. Tech in Man Made Fibre Technology was introduced. In the year of 1985 part time Master degree courses in Textile Technology and Textile Chemistry were started. The M. tech course in Textile Technology was continued on full time basis from 1988; however M. Tech in Textile Chemistry was discontinued from 1987. Later in the year 2005 M. Tech in Textile Chemistry with intake capacity of 18 students and B. Tech in Textile Engineering was started as regular courses. In the year of 2006 Institute become autonomous and renamed as Uttar Pradesh

Textile Technology Institute. In the year of 2012 institute get academic autonomy from UGC and it was implemented from session 2016-17.

The institute is funded by State government. The students are admitted through state examination conducted by AKTU. U.P.T.T.I. is the most preferred institution by the students in choosing a branch of study. The Placement Cell of the institution is performing well and over 80% of the students are getting campus placement in various MNCs of the country. Every year a good number of students are securing very high score in GATE as well as CAT examination and pursuing higher studies in premier institutions in India like IITs/ IIMs. All the faculty members are well qualified as per AICTE norms. Institute has more than 60 percent regular faculty having PhD degree and remaining faculty having Master's degree in respective disciplines. About 25% of present faculty has acquired PhD degree from IIT Delhi under the QIP Scheme and institute encourages faculty members for enhancing their qualification through QIP scheme.

The institute is centrally located in the heart of the city Kanpur in a total area of 19.6 acres. The institution is having a very good proximity with the many industrial and research organizations. Frequent interactions with faculties of IIT Delhi, HBTU Kanpur, IICT Bhadohi, scientists from DMSRDE and CSWRI help faculty as well as students to get value addition in their domain. The institute has also signed MoU with DMSRDE Kanpur, CSWRI Avikanagar (Rajasthan) for joint research and sharing of facilities. The institution has been also setting up an Innovation & Incubation Centre (IIC) in Textile for encouraging new ideas and creating an environment for product development

In order to achieve the specific mission of the institute, the institution has identified the following major objectives under the proposed project:

- Strengthening of institutional infrastructure to produce high quality engineers for better employability.
- Strengthening of UG and PG programs
- Training of Faculty and Staff for improved competence.
- Enhancing Institutional and System Management effectiveness.
- Enhancing Linkages with Industries

The following action plan has been chalked out for achieving above objectives.

- Providing state-of-the-art equipment for instruction and research
- Providing better Computational facilities and learning resources
- Enhancing the library facility by procuring E-books and E-journals
- Starting of module courses to improve soft skill like communication, presentation and group discussion of students.
- Conducting regular staff and faculty training programmes.
- Collaborating with industries in academics as well as research and consultancies

For the implementation of the above plans, an estimated budget of Rs 15.00 crore has been chalked out. At the end of the project period it is envisaged that the institution will be able to achieve the expected objective of ***improved learning outcome and employability of graduates.*** By providing the facilities, and also with various support available from the State Government along with various internal revenue generated through various programmes in the project, it is possible for the sustenance of the project beyond the project period.

2.2 SWOT Analysis

In order to analyze the strength, weakness, opportunity and threats of institute a systematic multi-stage approach has been followed. The process involved interaction with Director, faculty, staff, and students, industry personnel, alumni, and other stakeholders. The technique is used that involved interviews, brainstorming and other creativity exercise with various experts from industry and academia. A brain storming session was organized under the chairmanship of Prof. S. M. Ishtiaque, Professor, IIT Delhi and expert member of institute appointed by BOG.

2.2.1 Strength:

- Well qualified and experienced faculty (7PhD in Engineering and 3 PhD in Basic Science. Apart from this 5 faculty members are pursuing PhD)
- High ranking students are admitted through combined Entrance Examination (UPSEE)
- >80% placement through campus.
- Strong Industry Institute Interaction
- The institute provides consultancy services to various private/ government agencies.
- The curriculum of B. Tech and M. tech courses are comparable with IITs and other institutes and revised time to time with the help of renowned academicians & technocrats.
- Academic autonomy status of institute to implement its curriculum as per need of industry.
- Environment highly conducive to learning.
- Pioneer institute in textile since 1914.
- Having big workshops in Spinning, Weaving and Processing.
- Strong relationship with almuni

2.2.2 Weakness:

- Lack of sanctioned faculty positions as per AICTE norms. No sectioned posts for Textile Engineering department and only two sectioned faculty position for Man Made Fibre Technology department.
- About 37% vacant sectioned faculty positions leads to increased load on other faculty member.
- PhD faculty not fully utilized.
- Old laboratory and workshops need increase in capacity/ new building.

- M. Tech session not regular resulting in inadequate number of M. Tech students
- Inadequate modern instructional facilities.
- Inadequate research facilities. Most of the machines are conventional/ obsolete and difficult to run due to lack of spares, raw material and power.
- Non flexible staff structure.
- Inadequate incentive scheme/perks for staff.
- Inadequate research culture in institute and staff.
- Inadequate laboratory facilities.

2.2.3 Opportunities:

- Enhancing Industry-institute interaction as well as interaction with intellectuals within the country and abroad.
- Collective efforts of qualified faculty can bring in more and more research projects/ consultancy etc. to develop research environment in the institute.
- Getting donation from well placed Alumni of the institute.
- Arrangement of expert lectures from Alumni of Institute by inviting them
- Assigning projects to students dedicated to community services and industrial problems.
- Better scope of informal networking.
- Up-gradation of textile industry opens up job opportunity for the students.
- Globalization provides the broad market to the textile industry and better placement opportunities to the pass out students worldwide.
- Diversification of textiles has opened up new areas of research in Technical textiles, functional textiles etc.

2.2.4 Threats:

- Proposed system of contractual appointment for faculty.
- Good persons may lose initiative due to lack of appropriate incentives due to lack of grant/ students.
- Recession in all industry.
- Upcoming on new textile institutes located near the industry may increase competition and preference for job offer.

2.3 Strategic Plan

2.3.1 Strength

S. No.	Major Prioritized Strength	Strategies for harnessing Strength
1	Well Qualified & experience faculty & staff	Improving the quality of teaching and introducing new courses in emerging areas and consultancy in emerging areas
2	High ranking students are admitted through common Entrance Examination	Improving standard of examination, giving challenging assignments, providing creative and applied project work.
3	The institute provides consultancy service to various private/ government agencies	Use this report established to improve intraction with industry and expand sphere of consultancy beyond routine aspects and take up challenging projects.
4	The curriculum of B. tech and M. tech courses are comparable with IITs	Use this for marketing the institute. Benchmark too ranking international institutes to further improve the level of courses and thereby quality or products.
5	Good opportunities for R & D & publication	Such opportunities be utilized to enhance research climate of the institute. Undertake researches to develop technologies and obtain patents.
6	The students are well disciplined	The congenial atmosphere should be used to offer additional credit and non-cresit courses for all round development of personality of students and to promote creativity.
7	Environment highly conducive to learning	This can be used for implementing flexible choice based credit system
8	Pioneer Institute in Textiles since 1914	Corporate image of the institute can be used to further academics and consultancy

2.3.2 Weakness

S. No.	Major Prioritized Weaknesses	Strategies for minimize the effect of these weaknesses and removing them
1	Inadequate modern instructional facilities	Acquire modern instructional facilities and install them in all classrooms. Train faculty to use them to enhance the effectiveness of their teaching.
2	Inadequate research facilities	Augment the research facilities with the help of central funding agencies and alumni
3	Cumbersome purchase rules	Use of autonomy to simplify purchase rules
4	No flexible staff structure	Introduce flexible staff structure. Managerial and Administrative Autonomy would be handy to do this.
5	Inadequate incentive for staff	Find out alternative ways of providing incentives to staff in the existing rules
6	Most of machines are conventional/ obsolete	A large number have been auctioned recently to create space for new one. Phased replacement through Project funds will be possible
7	Inadequate interaction between institution/ industry and research organization	Other academic committees of the institute can intensify interaction. Regular interaction meet and visit to industry can improve interaction with industry
8	Inadequate Laboratory facilities	Through provision of modernization and maintenance fund laboratories can be updated.
9	Inadequate library facilities	Networking with other libraries and membership of online libraries can be used with e-journals and e-books.
10	Inadequate Finance	Variety of modes of financing institute can be used such as enhanced cost recovery, accepting the grant and donations from industries and alumni. Internal revenue can be generated adopted as policy

2.3.3 Opportunities

S. No.	Major Prioritized Weaknesses	Strategies for minimize the effect of these weaknesses and removing them
1	Enhancing industry-institute interaction	Establish new contacts with the upcoming industries and strengthen the existing ones. Offer industrial consultancy to solve their real life problem.
2	Collective efforts of qualified faculty can bring in more and more research projects/ consultancy etc.	The rich experience of the faculty and exemplary cooperation among them be utilized to take up more research projects and industrial consultancy.

3	Interaction with intellectuals from country and abroad	Because of ease of contacts with experts in India and abroad through internet it is possible to keep updated and use this for new research and projects.
4	Getting donations from well placed Alumni of the institute	There are many alumni who are well placed in developed countries and are willing to donate. These funds should be utilized to start sophisticated laboratories in cutting edge technologies
5	Sharing of resources with networking institutions	This should be used to set up joint ventures without causing much burden on any institution. This would result in resources optimization and increasing cooperation between institution
6	In Plant training for students	Use this for developing practical skills.
7	Better scope for informal networking	Tap it for IRG
8	Better scope of informal networking	Use it for technology transfer, enhancement of competence of staff and student and community work.
9	Up gradation of textile industry	Opens up job opportunity for students
10	Globalization provides the broad market to the textile industry and better placement to the pass out students	Offer courses with global perspective
11	Diversification of textile has opened up new areas of research	Enhance research and consultancy.

2.3.4 Threats

S. No.	Major Prioritized Weaknesses	Strategies for minimize the effect of these weaknesses and removing them
1	Project may not sustain on the expiry or project period	Planning in such a way right from beginning can minimize this this that all activities start becoming self sufficient financially
2	Good staff may lose initiative due to lack of appropriate incentives	As there would be increase in revenue generated through consultancy there would be enough fund to provide appropriate incentives. Autonomy will also help in formulating appropriate rules
3	Change in government policy may jeopardize the progress	Since Government is always supportive of good institutions there is no reason to believe that the new policies would jeopardize progress
4	Recession in industry	Opening of global market and grow of economy may help in mitigation of this threat
5	Opening of new textiles institute may affect placement activity	Having a large alumni base and good interaction with industry as well as updating with the need of industry will help in maintaining or rather improving the campus placement of students

2.4. Over All Strategy:

The overall strategy used will focus on a systematic planning, continuous faculty and staff development, periodic curriculum updating based on industry requirement and focusing on development in emerging areas, optimum utilization or resources, promotion of research and consultancy, bench marking with other national and internastional institutions, to create as academic ambience that nurtures competence and promote talent in a system which is itself sustaining and has a mechanism of self renewal.

2.4.1 Project Objectives:

Academic excellence:

- To develop M. tech faculty for enhancing qualification to PhD in order to increase research work.
- To enhance research activities in the Textile Technology, Textile Chemistry and Man Made Fibre Technology.
- To modernize IT and ET enabled infrastructure to promote student self-learning and modernized teaching and learning.
- To update the curriculum of P.G programme to suit requirements of emerging technologies and self learning.
- To regularize M. tech session and attract more number of students in M. Tech and PhD programme.
- To train faculty and staff members in content areas, curriculum development, education technology, institutional management, corporate governance, financial management, educational economies, basic IT skills, education; research multimedia and video production etc through tailor made training programs organized by national and international agencies in India and abroad.
- To modernize laboratories in consonance with new technologies and research activities.
- To introduce effective assessment of teacher by student, and improve feedback mechanism for improvement in academic services.
- To implement mechanism and system for cost recovery, effective and optimal utilization of recourses.

2.4.2 Net Working with Institutions

- To utilize intranet and Internet infrastructure for joint, collaborative working with other organization and information sharing.
- To undertake faculty exchange and resource sharing with other organization.

2.4.3 Management Capacity Building

- To train key functionaries of the management/ faculty/ staff members in system development and management, MIS, financial management, educational economics, basic IT skills, project planning and management etc.
- To train Technical and administrative staff in operation management, MIS implementation, IT basics, content related areas, Use of ET for instruction and student support etc.
- To develop and implement policies and best practices framework.
- To train faculty and staff in educational research methodology and undertake researches for improvement in efficiency, effectiveness, and self renewal of system and process.

2.4.4 Institutional Reforms:

To design, implement and make operational the institutional reforms viz.- administrative autonomy with accountability, managerial autonomy with accountability and financial autonomy with accountability.

2.4.5 Action Plan for scaling up enrollment into Masters and Doctoral Programmes (include measures to attract qualified students and maintain high quality standards)

- To make M. Tech program regular. This will attract students in enrolling.
- To start a scheme of assistance ship to students registered for M. Tech or PhD program on full time basis and do not get AICTE scholarship. The number could be restricted to 33% of sanctioned intake for M. Tech courses.
- To develop M. tech faculty by motivating for enhancing qualification to PhD in order to increase research work.

2.4.6 Action Plan for improving collaboration with Industry

S. N.	Activity	2017-18	18-19	19-20	20-21
1	Industry institute Cell	X	X		
2	Identification of industry and units	X	X	X	X
3	Identification of Activities	X	X	X	X
4	MOU Sign	X	X		
5	Execution of activities	X	X	X	X
6	Out-put monitoring		X	X	X

Key points:

- Training faculty, staff and students in industry
- Training industry personnel in the institute
- Regular expert lectures from industry
- Consultancy to the industry
- Conducting short term and long term training to executives and staff from industry
- Technology transfer to industry
- Securing project guides from industry

2.5 Action Plan for:

- Quantitative enhancement and qualitative improvement in research by institute faculty individually, jointly and collaboratively.
- Developing research interest among undergraduate students, and post graduate study
- Collaborating with Indian institution in academic and research area through MOUs.

S. N.	Activity	2017-18	18-19	19-20	20-21
1	Quantitative enhancement and qualitative improvement in research by institute faculty individually, jointly and collaboratively	X	X	X	X
2	Developing research interest among students	X	X	X	X
3	Collaborating with Indian institutions in academic and research area through MOUs	X	X		

2.5.1 Faculty Development Plan:

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

2.6 Targets against deliverables

INSTITUTIONAL PROJECT TARGETS

S. No.	Deliverables	Base Line	Targets to be achieved	
			At the end of two year	By project closing
1	Number of students registered for (a) Masters in Engg. Programme (b) Doctoral Programme	 23 5	 35 08	 50 10
2	Revenue from externally funded R & D projects and consultancies (In Lakh)	0.75 Lakh	3 Lakh	6 Lakh
3	Number of a) research papers in refereed • National Jouranls • International journals b) Patents Obtained/ filed c) Books d) Number of R & D projects commercialized	 03 01 Nil 01 Nil	 06 03 01 02 02	 10 05 02 04 04
4	Students credentials a) Campus placement of UG Students PG students b) Average salary of placement package (Rs in lakh) • UG students • PG students	 80 % Nil 2.6 Lakh -	 90 % 40% 3.2 Lakh 4.0 Lakh	 95% 75% 4 Lakh 4.8 lakh
5	Number of collaborative programs with industry	02	06	12
6	Accreditation Status	Nil	50 % of eligible UG & PG	100% accreditation for UG & PG
7	Vacancy position for faculty and staff	37 %	Vacancy reduced to 10%	Zero vacancy
8	Number of Regular Faculty with PhD in Engineering Discipline	07	10	12

2.7 Action Plan to ensure that the Project activities would be sustained after the end of the project.

2.7.1 SUSTAINABILITY PLAN

Sustainability of project gains is important to realized institute vision based on long term perspective plan. Strategically it is dependent on continuation on commitment to excellence and adequate fund flow during the post project period. For continuance of commitment of excellence UPTTI Kanpur envisages to put a policy in place. Further adequacy of fund flow can be certain by instituting cost recovery measures backed by appropriate policy. The sustainability plan is detailed below.

2.7.2 CONTINUATION OF COMMITMENT TO EXCELLENCE

Commitment to excellence is based on attitudinal change in faculty and staff, and development of base line in terms of systems, process and policies. It is development of organization of ethos and philosophy of virtuous spiral of ascent based on foundation of corporate governance, nurturing of talent, continuous training, and ensuring adequate fund flow through cost recovery with built in autonomy and accountability. In particular following activities as detailed earlier in project will help in ensuring continuance of excellence.

- Development of faculty and staff to effect attitudinal changes enhanced sponsored research and consultancy, and high quality teaching supported by IT and ET enabled infrastructure resulting in student centric learning.
- Continuous monitoring, evaluation and adoption of remedial measures to sustain academic outputs.
- Institutional level monitoring, and evaluation by a committee to ensure cost recovery, efficiency and effectiveness, continual improvement and reduction in waste.
- Faculty assessment/ performance appraisal supplemented by appropriate incentives.
- Student feedback.
- Peer reviews/ Joint Academic-industry reviews.

2.7.3 Promotion of Academic Excellence

- Facilitating regular faculty adoption of best academic practice related to curriculum development and implementation to ensure learning on part of students.
- Adequate emphasis in curriculum on Experimentation, real life problem solving and self learning.

- Faculty development.
    - Interaction with internationally reputed institutions
    - Organizing and participating in international and national conferences and seminars etc.
    - Joint/ collaborative research and development programs
    - Academic productive linked incentives
- Course mentor and industry experts to guide and evaluate the contents and delivery of curricula
- Extensive training and development of technical and student staff on continuous basis.
- Development of learning resources including multimedia and web content.
- Promoting research and consultancy culture.
    - Undertaking sponsored R & D projects and generating more resources for research.
    - Increasing output of faculty, doctoral and PG scholars leading to high quality research publications and other knowledge products.
- Reorienting teaching learning process to encourage P.G. and Doctoral students to undertake teaching as profession.
- Restructuring of existing courses and offering of need based, demand driven U.G., P.G. and Doctoral programs in Engineering discipline.
- Establishing and sustaining centres of excellence/ centres of advanced studies in cutting edge textile technologies.
- Implementing cost recovery measures in all types of service offering.

2.7.4 Networking:

Non-formal network with higher-level institutions, R & D laboratories and Organization and industries.

Institute Development Project				
2.8. Tentative Budget Allocation under TEQIP –III				
2.8.1 Procurement of Goods (equipment, furniture, books LRs, software and minor items) and civil works for improvement in teaching, training and learning facilities				
	2018-19	**2018-19**	**2019-20**	**Total**
Equipments	Lakh	Lakh	Lakh	Lakh
Spinning lab (Blow room, Carding/drawing/ring frame /advance spinning system)	30	20	15	30
Weaving Lab (weaving/ non-woven/Knitting/ garment)	30	20	15	110
Testing lab (Fibre/ yarn/ fabric testing)	60	30	30	120
Textile Chemistry lab.	20	15	10	45
MMFT Lab (Characterisation of fibre)	50	30	20	90
Mechanical Engg. Lab	5	5	5	15
Computer lab	20	20	13.5	53.5
Electrical Lab.	5	3	2	10
Physics lab	7	3	2	12
Chemistry lab.	20	10	5	35
Furniture	10	10	10	30
Library				
Books and Journals	15	10	10	35
Digital library	20	10	10	40
Software (ERP)	10	5	5	20
Computer and other	10	10	5	25
Smart Class Room	15	15	13.64	43.64
Minor civil work	25	20	20	65
Wi-fi facility	40	20	20.27	80.27
CAD Lab + Math Lab	20	10	10.59	40.59
Total	**410**	**275**	**215**	**900**

Institute Development Project				
Tentative budget allocation under TEQIP –III				
2.8.2 Improvement in Teaching, Learning and Research competence'				
	2018-19	**2018-19**	**2019-20**	**Total**
Faculty and staff training	(Lakh)	(Lakh)	(Lakh)	(Lakh)
Subject upgradation and research competence (Organisisation of seminar/ workshop/summer school/ training program)	5	5	5	15
Continuing Education Programmes (CEPs) to 20 Professional	5	5	5	15
Participation of faculty in Seminars, Conferences, Workshops, etc (National / International)	10	10	10	30
Pedagogical Training	2	2	2	6
Technical Staff	4	4	4	12
Administrative Staff	2	2	2	6
Increasing capacity for postgraduate education and establishing teaching and research				
Teacher Assistantships (TT-4+TC-6=10/ year)	14.88	29.76	29.76	74.4
Research Assistantships (TT-2+TC-1 +P/C/M-1=4/year)	13.44	26.88	40.32	80.64
Improving transition rates of all categories of students and improving non-cognitive skills of students				
Increasing interaction with industry(Expert guest lecture/skill or personality development course)	5	5	5	15
Student employability				
Support to 10 UG and 20 PG Project – totasl 120 @ Rs 10000/	12	12	12	36
Training of soft skill to students	10	10	10	30
Establishing a twinning system				
Twining arrangements with high performing institutions under Sub-component 1.3 to build capacity and improved performance (Exchange Program)	5	5	5	15
Filling-up existing teaching and staff vacancies (10 post @ 30000 -75%)	24.75	24.75	24.75	74.25
"Seed grant" for research to faculty members and / or students to venture into innovative research and to strengthen research culture in institutions	10	15	15	40
	123.1	**156.4**	**169.83**	**449.3**

Institute Development Project				
Tentative budget allocation under TEQIP –III				
2.8.3 Incremental Operating Cost (In Lakh)				
Faculty position created under the project (Teacher fellow-2 MMFT and 4 TE) @30000.00	19.8	19.8	19.8	59.4
Salary for staff (Technical staff-3No@12000/ Administrative staff, Supporting staff-2 @ Rs 10000/)	11.04	11.04	11.04	33.12
Travelling allowance	10	10	10	30
Operation and Maintenance cost i.e. AMC of Equipments/ERP	10	10	10	30
POL/Hiring of vehicle	5	5	5	15
Consumables (Stationary and computer stationary and other consumable)	4	5	5	14
Consumable for lab.	4	5	5	14
Advertisement / printing and other administrative cost	4	5	5	14
Total	**67.84**	**70.84**	**70.84**	**150.12**

Annexure-I

Proposal for Textile Technology Department

Departmental Information:

Name of HOD : Dr. Pramod Kumar

Number of faculty members with PhD : 04

Number of M. Tech. faculty member : 02

1. **Equipments:**
   List of Equipment of research facility and M. Tech I & B. Tech. in Textile technology

Textile technology department run UG and PG programme in the institute with the intake of 40 and 12 per year respectively. The department also provides theory & practical support to students of other branches like Textile Chemistry, Textile Engineering and Man Made Fibre Technology**.** The department has number of spinning and weaving and non-woven machines. However with the advancement of technology there is need to upgrade the lab, so that they can carry out practical as well as project work with the help of these machines.

The spinning lab of department is in very bad condition. Therefore it is proposed to refurbish New Dye house lab and the new machines be installed on them. There is also need to refurbish the weaving workshop. It includes flooring, lighting, and other minor civil work.

S. No.	Name of Equipment	Qty	Approximate Cost in (INR)	Justification
01	Air- jet Loom	01	35 Lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
02	Single end Sizing	01	10 Lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
03	Single end warping	01	15 Lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
04	Sample rapier Loom	01	30 lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
05	Sectional warping machine	01	20 lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
06	Pilot Vortex spinning machine	01	20 lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
07	Miniature Roving Frame	01	10 Lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
	Total		**140 Lakh**	

Annexure-II

Proposal for strengthening of Textile Testing Lab under the department of Textile Engineering

Name of HOD : Dr. Prashant

Number of staff : 02

S. No.	Name of Equipment	Approximate Cost in (Lakh)	Justification	Some manufacturers
1	Yarn Evenness tester with yarn hairiness attachment	60 Lakh	This instrument is used or testing of sliver, roving & yarn as well as yarn imperfections & hairiness value. The procurement of this instrument will help imparting knowledge to UG students as well as this instrument will be great help for UG & PG students.	Zelweger Uster, Premier,
2	Vibrodyn	15 Lakh	This instrument is required for measuring single fibre strength & elongation. The procurement will help the student for carrying out UG, PG practical's as well as sample testing for project work.	
3	Digital Fibrograph	10 Lakh	To measure span length and length distribution of cotton fibre	
4	Digital Micronaire tester	5 Lakh	To measure cotton fibre fineness	
5	Permetest	15 Lakh	This instrument is used for measurement of the moisture vapour permeability and evaporation resistance	
6	Alambeta	15 Lakh	To measure thermal conductivity, thermal diffusivity, thermal absorptivity, thermal resistance of fibre	
	Total Cost (Approx.)	**120 Lakh**		

Annexure-III

Proposal for Man Made Fibre Technology Department

Departmental Information:

Name of HoD : Dr. Mukesh Kumar Singh-I

Number of faculty members with PhD : 01

Number of M. Tech. faculty member : Nil

1. **Equipments:**
   List of Equipment of research facility and B. Tech. in Man Made Fibre Technology

S. No.	Name of Instrument	Approximate Cost (INR)	Justification	Some well known manufacturers
1	Differential Scanning Calorimeter	30 Lakh	Requires at UG and PG Level. Needed for both UG & PG level project works	Perkin Elmer, Mettler Toledo, Shimadzu
2	Thermogravimetric Analyzer (TGA-MS)	40 Lakh	Requires at UG and PG Level. Needed for both UG & PG level project works. TGA is used to study the thermal stability of various fibres and polymers used for analysis of degraded products simultaneously.	Perkin Elmer, Mettler Toledo, Toledo, TA instrument, Leco
3	Dynamic Modulus tester	10 Lakh	Requires to measure the overall orientation factor of all natural and man made fibres at both UG and PG level.	Lawson and Hemphil
4	Coefficient of Friction (COF) Tester Comuterized)	10 Lakh	This instrument is capable to measure the dynamic and static coefficient of friction which is essential to measure at both UG and PG students	Lawson and Hemphil
	Total Approximate Cost	**90 Lakh**		

Annexure-IV

Proposal for strengthening of Textile Chemistry Department

Departmental Information:

Name of HoD : Dr. Abha Bhargava

Number of faculty members with PhD : 01

Number of M. Tech. faculty member : 02

List of Equipment of research facility and B. Tech. in Textile Chemistry

Textile chemistry department run UG and PG programme in the institute with the intake of 60 and 18 per year respectively. The department also provide theory & practical support to students of other branches like textile technology, textile engineering and Man Made Fibre Technology**.** In order to cope with the increasing number of students the department proposes following civil works to be undertaken in addition to the instruments required for upgradation of laboratory.

The following minor civil works are being proposed by the department.

1. To prepare platform of 15' x 25" with all accessory- approximate cost 2.5 Lakh
2. Refurbishment, tiling and minor electrical works of Textile chemistry lab- 2.0 Lakh

Equipments

List of Equipment for Research facility & for strengthening of Textile chemistry lab

S. No.	Name of Instrument	Approximate Cost (INR)	Justification
1	Xenon Light fastness Tester	15 Lakh	Requires at UG and PG Level practical works. Needed for both UG & PG level project works
2	Flammability Tester	01 Lakh	Requires at UG and PG Level. Needed for both UG & PG level project works
3	Lab Model rotary Screen printing m/c	3 Lakh	Requires at UG and PG Level practical work. Needed for both UG & PG level project works
4	Limiting Oxygen Index Tester	7 Lakh	Requires at UG and PG Level. Needed for both UG & PG level project works
5	Lab Coater machine	15 Lakh	Requires at UG and PG Level. Needed for both UG & PG level project works

Annexure-V

Proposal for strengthening of Mechanical Lab

There is no separate department of mechanical engineering in the institute as institute does not run UG or PG courses in this discipline. However there exist faculty positions as well as mechanical workshop, mechanics lab and engineering graphics lab to cater the needs of UG students of first year as well as supporting textile engineering discipline. Therefore there is need for up-gradation of these labs to match the demand of industry and support the students in projects etc.

List of Equipment list for Mechanical Workshop and Mechanics lab

S. No.	Name of Equipment	Qty	Approximate Cost in (Lakh)	Justification
1	Universal testing machine	01	5.0 Lakh	Essential for UG student Mechanical Lab
2	Farrier and Blacksmith Coal Forge with Duct	03	3.0 Lakh	This is required for Black smithy shop practical for 1st year student
3	Tilting Furnace- 100 Kg	01	2.0 Lakh	This furnce is required for carrying out UG student Moulding shop
4	Lathe Machine	01	5.0 Lakh	This instrument is required for machine shop practical's
	TOTAL		**15 Lakh**	

Annexure-VI

Proposal for strengthening of Engineering Physics Lab

This engineering Physics lab comes under basic science department. There is need to upgrade the physics lab as per the need of UG students of all discipline. The list of equipments required for strengthening of Physics lab are as under.

List of Instruments (Department of Physics)				
S. No	Name of the Instrument & Quantity	Technical Specifications	Qty	Approxi. Cost(lakhs)
1	***Hall effect Instrument***	***Complete setup for " To study the Hall effect and determine Hall coefficient, carrier density and - mobility of a given semiconductor using Hall effect set up".*** Setup Contains:- An Electromagnet of two poles, Constant Current Power supply for electromagnet (0-5)Amp, Hall Effect power Supply with digital voltmeter, ammeter with variable crystal current, Digital Guass meter with guass probe, Smaple Ge-Crystal , n-type, Wooden stand for probes.	01	0.65
2	***Hysteresis curveExperimental Set-up***	***Complete setup for "To draw hysteresis curve of a given sample of ferromagnetic material and from - this to determine magnetic susceptibility and permeability of the given specimen".*** Setup Contains:- An Electronics unit with varaible AC voltage, mounted soleniod coil with ferrites sticks, also variable utility for phase shift variation, patch cords and CRO	01	0.75
3	***High resistance measuring Instrument***	***Complete setup for "High resistance by leakage method".*** Setup Contains:- A Ballistic Galvanometer 500 OHM, Lamp & Scale Arrangement, Regulated Power Supply (0-5)V, Resistance & Capacitance Box, Plug Key, Morse Key, DCC Wire, Digital Stop Watch, spirit level.	01	0.20
4	***Magnetic Susceptibility measurement instrument***	***Complete setup for "Magnetic Susceptibility of paramagnetic solution".*** Setup Contains:- An Electromagnet of two poles, Constant Current Power supply for electromagnet (0-5)Amp, Digital Gauss meter with gauss probe, Wooden stand for probes, Sample Quinck`s Glass Tube with stand, Sample Salt, Beaker and Two Motion Travelling Microscope.	01	0.70
5	***Digital Polarimeter***	***Complete setup for " measurement of Specific Rotation" of Liquid Solutions.***	01	1.0

		Features: 0.01° Arc Accuracy, 589nm fixed, wavelength, Built in thermo-probe for temperature measurement, Windows Embedded 7 for direct connection to the network server and flexible USB Printing.,TempTrol™ Automatic Electronic Heating & Cooling 15° – 40°C ±0.2°,AP Accuracy Option: 0.004° Arc Optical Rotation, AP Resolution Option: 0.01, 0.001° Arc Selectable.		
6	**Spectrometer**	Complete set up for determination of wavelength of spectral lines using plane transmission grating with light source.	01	0.65
7	**VARIABLE CONSTANT TEMPERATURE WATER BATH**	Temperature range -5°C to 85°C, Volume: 10 - 12 liters approximate, · Inner tank and Top made of Stainless steel· Outer made of Mild Steel Powder coated. Digital Microprocessor based PID temperature indicator cum controller (Eurotherm module) with 0.01°C display Temperature controlling accuracy: +/- 0.01°C without circulation, · PT 100 sensor for temperature sensing.Pump cum Stirrer for uniformity of temperature, Flow rate 3-4 liters per minute at zero head, Long life Stainless steel heater with larger safety cold zone, Automatic high temperature safety cut off, · Power supply: Single Phase 230 V, 50Hz.	01	1.44
8	**MULTIFREQUENCY ULTRASONIC INTERFEROMETER**	The High Frequency Generator: Operating at 11 Freq. (1 to 12MHz) , Liquid Cells for liquid samples : **Special grade S.S.Cell** with quartz crystal in bottom for each freq., One Cell Top having Stainless Steel reflector controlled by **digital micrometer** L.C. 0.001mm. It is matching to 11 cells**,**Base : Heavy base to hold above. Inside bronze. Nickel chrome plated from out side. Cable to connect generator for liquid Cell : It has silver plated connectors at both the ends	01	3.00
9	**Microwave X-bench**	Microwave generator 9-10 Ghz or 3 cm bench, Gun diode coupler, matching termination isolator, Pad attenuator(3dB-10dB), variable attenuator slotted bench, crystal detector arrangement with meter, E-H coupler, multihole direction coupler, matching section, E-plane bench, frequency matcher, dielectric cell for liquid and solids.	01	1.2
10	**Impedance bridge-transformer ratio arm bridge**	Facility for dielectric constant, dielectric loss, tanδ measurement for liquids and solids at different temperatures.	01	1.1
11	**Dipolemeter**	Main Unit having Frequency Counter, Audio Oscillator and suitable Electronic Circuity Dielectric Cell Unit consists of 1.Dielectric Cell (SS) assembly with Teflon top & BNC connector 2.Beaker (100 ml) 3.Attachment for circulation of water from external water bath.	01	1.2
Total (Approx.)			**11.89 Lakh**	

Annexure-VII

Proposal for Wireless Network for Admin Block, Residential Area and Hostels within UPTTI Campus

Cost of Proposal: 80.27 Lakhs

Extensive working and survey has been exercised before presenting this proposal for providing Wi-Fi solution to the stakeholders of Uttar Pradesh Textile Technology Institute, Kanpur, within Campus. The areas covered under study are administrative block, residential areas, boy's and Girl's hostels, laboratories and workshops. The newly established IIC and Skill Development Centre have also been covered. The common student activity areas and canteen are also taken into considerations.

While proposing the solution the design of old buildings and a high thickness of old building walls are also taken into account.

Wi-Fi solution is proposed where all backbones will be on 1 G using single mode 12 core optical fibre cable. One core switch is recommended at Computer to cater all backbones of OFC. PoE based switches will be used at all termination points of fiber. Controller based PoE Access Points will be connected to Access Switches for end user wireless connectivity. Again the proposed Access Points are expected to be dual band working on IEEE 802.11ac protocol. The WLAN controller shall be installed on the existing wired network at the central or the core switch location in the campus.

Wireless LAN Controller is used to manage these access points remotely and for better implementation of security policies. The same setup can be used in future for further expansion. Using this solution one has control over the management feature of the wireless technology.

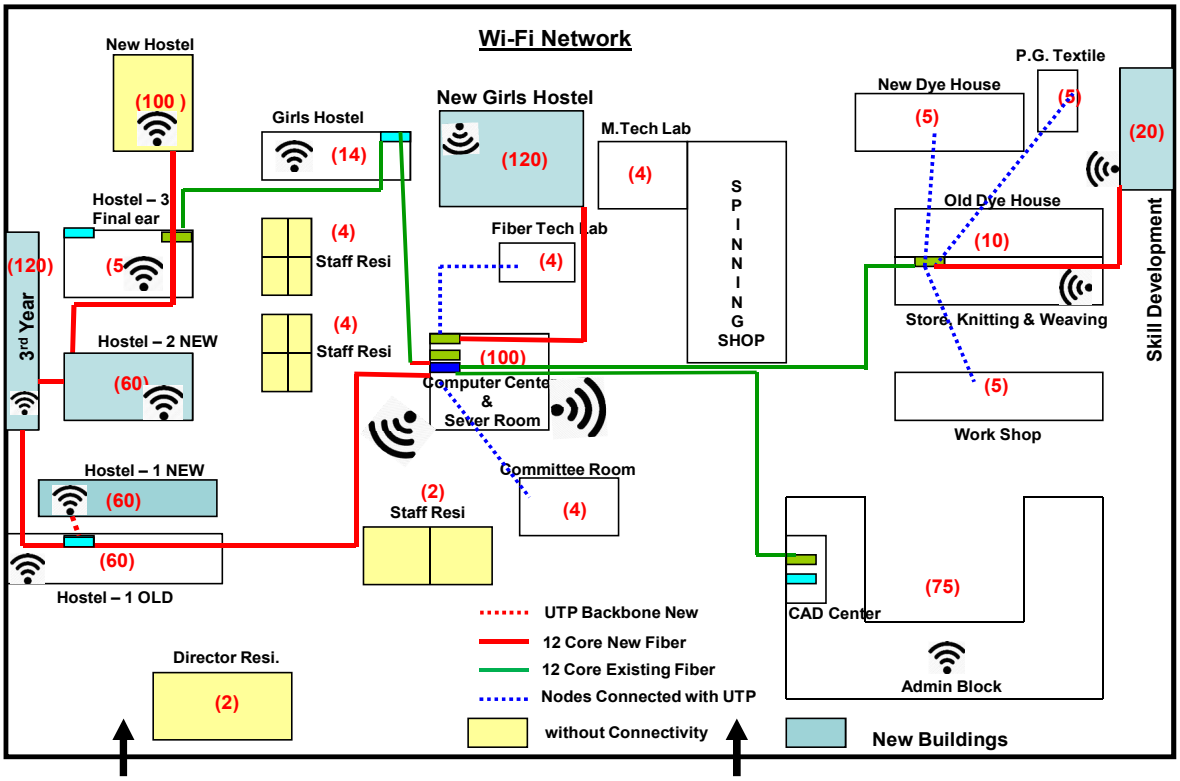
We are also proposing UTM/Firewall for real time logs for security and efficient use of technology.UPS at locations are recommended seeing the electricity condition at Kanpur and for uninterrupted Wireless network.

A tentative bill of quantities with 3 years warranty along with backbone and Wi-Fi locations layout is attached.

We strongly believe that we should go for WLAN switch based solution rather than very low through put, unsecured, unmanageable and a single point failure WI-FI solution on canopy based point to multipoint wireless technology.

The financial proposal For Rs 80.3 Lacs and the layout plan has been presented in the following pages.

U.P. TEXTILE TECHNOLOGY INSTITUTE, KANPUR



ESTIMATED PROPOSAL FOR WIFI NETWORK UPTTI, KANPUR					
S.No	**Name of Required Item**	**Quantity already available**	**Quantity not in working condition**	**Additional quantity required**	**Estimated Cost (Rs)**
1	CORE SWITCH Layer3 Core Switch, 24 port SFP with 4 10G XFP/SFP+ ports,IP ver6 Compliant, along with 10 SFP modules and Dual Redundant Power Supplies (Can support 10G base LR/SR, 1G Base LX /SX tranceivers)	NIL	NIL	1	400000
2	EDGE SWITCHES-TYPE 1 Layer 2/3 Edge Switches having 8 Nos. Ethernet 10/100/1000 BaseT with Power Over Ethernet Support (for powering Access Points) along with 2 nos. 1 G Uplink Ports, IP ver6 Compliant	NIL	NIL	8	400000
3	EDGE SWITCHES-TYPE 2 Layer 2/3 Edge Switches having 24 Nos. Ethernet 10/100/1000 BaseT with Power Over Ethernet Support (for powering Access Points) along with 4 nos. 1 G Uplink Ports, IP ver6 Compliant	NIL	NIL	2	500000
4	1GB SX Transceivers for MM fiber	NIL	NIL	10	250000
5	Wireless controller for Aps	NIL	NIL	1	350000
6	ACCESS POINTS Controller Based 802.11ac	NIL	NIL	65	1950000
7	OUT DOOR access point controller based with high gain antenna	3	NIL	9	1050000
8	5 KVA UPS	NIL	NIL	1	100000
9	1 KVA UPS	NIL	NIL	9	180000
10	UTM/FIREWALL for min.1000 users	NIL	NIL	1	1200000
11	Fiber Patch Cord - SC to LC, MM Fiber Optic Pigtail, MM	NIL	NIL	40	60000
12	Fiber Optic Pigtail/connectors MM	NIL	NIL	120	60000
13	UTP CAT6 Information Outlet with Surface Mount Box	3	NIL	80	55000
14	UTP CAT6 24 Port Patch Panel	NIL	NIL	10	50000
15	UTP CAT6 Patch cord (1 meter)	NIL	NIL	160	33000
16	UTP CAT6 cable (Box of 305 meters)	Nil	NIL	20	120000
17	OFC MM(per mtrs)	NIL	NIL	1600	320000
18	12 PORT LIU Fully loaded	NIL	NIL	10	100000

19	HDPE pipe for Laying of OFC	NIL	NIL	1600	132000
20	Supply of 1" PVC Pipes/ Conduits including required gully, screw (per meter)	NIL	NIL	4000	120000
21	Rack, 19" 9 U along with Cable Manager and Power Strip	NIL	NIL	10	65000
22	Security Housing for Access Points, with Steel Cage and Security Lock	NIL	NIL	100	20000
23	Splicing of Fiber Optic Cable Core (per core basis)	NIL	NIL	120	30000
24	Fixing and Dressing of Fiber Termination Unit	NIL	NIL	10	5000
25	Digging/Resurfacing/ and laying/on wall of OFC along with HDPE	NIL	NIL	1600	320000
26	Laying of PVC Pipes/ Conduits (per meter)	NIL	NIL	4000	40000
27	Laying of CAT-6 Cable in PVC Pipes/ Conduits (per meter)	NIL	NIL	6100	61000
28	UTP CAT6 I/O Fixing & Termination	NIL	NIL	80	5500
29	UTP CAT6 Patch Panel Termination	NIL	NIL	10	5000
30	Rack Fixing and Dressing including Fixing of Jack Panels, Cable Laying and Ferruling etc.	NIL	NIL	10	10000
31	Installation of UPS	NIL	NIL	10	5000
32	Installation and configuration of UTM/Firewall	NIL	NIL	1	10000
33	Documentation and Configuration of entire network	NIL	NIL	1	20000
	Total				**8026500**

Note Warranty: 3 years

Outcome of the Proposed System

The proposed solution is to provide internet and intranet over Wi-Fi to the stake holders of UPTTI. The already available LAN, connecting some segments by optical fibre and some by CAT 5 cable is providing us the backbone to enhance our network. The institute is 100 years old with ancient type of buildings. In the recent years we have strengthened our infrastructure by construction three new boy's hostels, one new girl's hostel and several other buildings to cater to the projects like IIC and Skill development. Further construction of new classrooms and laboratories, the student activity area and gymnasium etc are also proposed at various places within the campus. To cater to the need of activities at these areas internet availability is the key parameter.

The current solution proposes the internet access to over 1000 stakeholders in three layer secure manner, while complying all government norms. The solution is designed to get at least 10 Mbps download speed at each and every node, though the theoretical throughput is very high. The

internet backbone (1 Gbps) is available from RAILTEL (NKN) and is working fine. The proposed solution will provide access to internet over Wi-Fi to almost all blocks of institute. The need of LAN connection within the new hostels is eliminated with this proposal. The students will be able to use the academic resources at a greater and uninterrupted speed. As the institute is situated in the heart of the city, surrounded by densely populated area, the security concerns were there which bound us to use three level securities.

The estimation is done considering three years of warranty of the whole system.

Area Covered by this installation

First year hostel (Still Uncovered)

Second Year Hostel (Still Uncovered)

Boys Hostel IInd Year Old part and back wing rooms of new block of Iind Year Hostel

Remaining part of 4th year Hostel

Remaining part of 3rd year hostel

New hostel under construction in place of old banyan tree hostel

To cover inner part of old institute

Faculty Chambers, Physics Lab, Chemistry Lab, Elect Lab etc.

New Exam Building, III Cell andSkill Development Centre

Annexure-VIII

Financial Proposal for procurement of Computers and Software.
Proposal Cost Rs 53.50 Lakh

Sl No		Equipment/Item	Brand	Qty	Approximate Rate (Rs Lakh)	Approximate Amount (Rs Lakh)
1		**Desktop computer** : Core i7,4GB RAM 1TB HDD LED monitor 19" ,wi fi and LAN both enabled 4 USB ports, MS Windows 10 Pro with License and Media, MS Office 13 Pro with License and media, Restore DVD, etc	Dell/HP/ Lenovo/ ACER	50	0.5	25.00
2		Laptop Computer: Core i7,4GB RAM 1TB HDD 16.5" ,wi fi and LAN both enabled, USB ports, MS Windows 10 Pro with License and Media, MS Office 13 Pro with License and media, Restore DVD, etc	Dell/HP/ Lenovo/ ACER	18	0.6	10.80
3		Print Scan Copier HP M1005	HP	12	0.15	1.80
4		Print Scan Copier Colour	HP	02	0.45	0.90
5		additional module for Student management Sofware		1	10.00	10.00
6		Application Software Photoshop, Corel Draw, Windows Server one each		3	1.00	3.00
		Total Rs in Lakh				**53.50**

(Ramyagya) (Jitendra Kumar Gautam) (Indra Prakash Mishra)

Annexure-IX

Financial Proposal for establishment of 10 New Virtual Class Room. Proposal Cost Rs 43.64 Lakh

Sl No		Equipment/Item	Brand	Qty	Approximate Rate (Rs Lakh)	Approximate Amount (Rs Lakh)
1	**Interactive Projection System consisting of following features:**		Sony/ Samsung/ Dell/Smart/ Epson	10	1.0	10.00
	a	Interact with applications, perform mouse functions and write and erase digital ink using a finger or the interactive pen. Basic mouse operations with a finger or an interactive pen. With roof/wall Mounting Kit & proper security arrangement.				
	b	HD projection having WXGA 5000 lumens or more to create bright, accurate and consistent colours				
	c	Compatibility with multiple platforms and operating systems such as window 7, window 8, windows 10, Android and IOS to make it handy for smart phone, tablet and laptops.				
	d	Cables and connectors (HDMI,VGA, LAN and Sound etc are required for connecting the device with peripherals and are in scope of this supply.				
	e	Projector device should have 2GB internal flash memory or from up to 32 GB using USD flash drive				
	f	Inbuilt sound system including speakers suitable for class room.				
	g	wireless display(Wi fi) along with support for enabling easy projecting with various Wi fi enabled devices for smooth video streaming				
	h	Wi Fi connectivity for any laptop, tablet or smart phone				
	i	Multiple ports including USB, RJ45, HDMI to allow various wired device connections and easy integration with existing network.				
	j	Roof mounting /wall mounting kit with at lest 10 meter connecting cables of various types HDMI,VGA, Sound				

		and LAN etc (for all projector functions.				
	k	Whiteboard with minimum 4' x 6' on Aluminum Frame				
	l	Optical Pointer and mouse device for easy presentation is included in the scope of supply.				
	m	Podium microphone will be used by the teacher and is not in the scopeof this item but included as separate item in this schedule and to be supplied by you, The microphone has to be connected to the projector for delivering the lecture to students through projector's sound system.				
	n	Podium microphone will be used by the teacher and is not in the scopeof this item but included as separate item in this schedule and to be supplied by you, The microphone has to be connected to the projector for delivering the lecture to students through projector's sound system.				
	o	Required software for interactivity with white board including features as recording write-up of white board, redisplay, projection through LAP Top or Wi-Fi device or through Mobile is in the scope of Supply				
	p	All above included but not limited to only with Installing, programming, commissioning and training to the concerned faculty for smooth functioning of above mentioned features.				
2	**Wooden Podium**		Custom Made	12	0.16	1.92
	a	**Size**: Minimum Size: 2.5'x2.5'x4.5' (WXDXH)				
	b	**Material**: Made of Sandwiched Block board and mica, with glass top for visibility of the computer Monitor screen				
	c	**Space**: Space for keeping podium microphone, space for keeping book etc, space for moving mouse for computer operation, space for keeping teacher's aids like chalk, marker pen etc. as per design approved by engineer in charge.				
	d	Should have lockable cabinet with front doors in two				

		fold and internal lock for housing computer etc.,				
	e	At the front of podium a full width aesthetically made logo of institute on good quality fibre sheet is to be fixed as per design approved by engineer in charge.				
	f	At least two shelves inside the podium cabinet are required.				
	g	Required holes for entering cables of projector, power, sound system and other peripherals with power cables etc.				
3	**High Quality Document Viewer Or Document camera**		Wow Vision/ Lumens/ People link/Eq.	5	0.85	4.25
	a	11X Optical Zoom or more. It should have a Digital Zoom of 11X or more. It should have a 1/3" CMOS e sensor or better. It should support Full high Definition Video at 30fps or better. It should have at least 5 images memory or more. It should come up with 2 or more number of Light lamps. It should come up with at least one HDM i output, at least 1 USB Port and at least one VGA output port. It should have RS-232 port for third party control system. It should have a camera rotation of 240 degrees or more horizontally as well as vertically.				
4	**LED TV**		Sony/ Samsung/ Sony/	4	1.50	6.00
	a	139 cm (55") 4K (Ultra HD) Smart Edge Commercial Full High Definition TV				
		Wall Mount Kit for LED TV,				
		With LAN internet connectivity,				
		With Wi-Fi Connectivity				
		With VGA, HDMI, USB port, AV in, AV out ports				
5	**Theatre Audio System for class room**		Yahama/ Konftel/P eoplelink	5	1.40	7.00
		Microphones: 1 Lapel Microphone, 1 hand held cordless microphone, one podium microphone,				

		Amplifier and Mixer Device as per following Specs: Audio Interface: It should have USB 2.0 port or higher. Output Port: It should have 3.5mm Stereo Output Port. Gain: Should have a Speaker gain control of < 12 dB or better. ALC: Should have an Automatic Level Control of < 18 dB or better. Noise reduction: Should have a Noise Reduction of < 16dB or better Output level: Should have an Output Level of > 87dBA or more Pickup: Should have an Audio Pickup of 8ft radial or better. AEC: Should have an Acoustic Echo Cancellation of > 40dB or better. Audio Features: Should have Automatic Echo Cancellation, Automatic Gain Control, Automatic Noise reduction, Automatic Non Linear Processing, Automatic Level Control, Automatic Microphone Equalizer. Temperature: It should have an operating temperature of 0 to 40 degrees Celsius or better. Humidity: It should support Non- Operating humidity (Non Condensation) of 20-85% or better. Wall mounting Rack for installation of above.	/Eq.			
		Speakers: Should contain five channel stereo sound output devices (Speakers of suitable rating) to suit above .specs				
		Terms: Installation, integration with projector system and commissioning inclusive				
6		Podium Microphone with amplifier and accessories for connecting with Wall mounted HD projector	Yahama/ Konftel/Peoplelink /Eq.	4	0.1	0.40
7		5.0KVA ONLINE UPS suitable for 16 batteries of 42AH, along with 16 batteries of 42 AH,12 V, exide / Amaron/ Prestolyte/ Eq. Make with sheet steel cabinet type enclosure (Closed) for housing battery bank.	APC/Eq.	5	1.25	6.25
8		**Desktop computer** : Core i7,4GB RAM 1TB HDD LED monitor 19" ,wi fi and LAN both enabled 4 USB ports, MS Windows 10 Pro with License and Media, MS Office 13 Pro with License and media, Restore	Dell/HP/ Lenovo/ ACER	10	0.5	5.00

		DVD, etc				
9		**True Shine Wave 800 VA invertor** with invatublar 150AH double battery of exide/Prestolyte/Amaron/Okaya/Microtech	Microtek/ Luminous/Su-Kam/exide	2	0.4	0.80
10		**CCTV camera System for eight camera** **Wireless, Outdoor,** Dust and water resistant, High Resolution ((HD), IR, colour **with eight (08) tiltable and zoomable camera, with required management hardware (like suitable DVR, Power supplies, Cables etc.)/ Software and at least two months recording hardware (4TB) with display unit.** **It is important to note that Camera should use our Wi-Fi internet connectivity for display and recording or management etc. with all accessories including but not limited to:** with complete installation and commissioning	Sony/Samsung/CPPlus/Eq.	1	2.0	2.00
		Total Rs in Lakh				**43.64**

Annexure-X

Proposal for strengthening of Library

A well equipped library along with e-books and e-journal is the back bone of any institute to flourish. The institute procures number of books and journals on regular basis. The institute has also installed KOHA library management software so that issue of books has been done paperless. In order to strengthen the library and improve the facility activities are proposed can be devided into two parts.

1. Infrastructure & facility
2. Books & Journals

Regarding books and journal the total funding required for the project duration is as follows:-

A)	Library books & Journals :-	
	i) Print Books	- 10 Lakh
	ii) E- Books	- 30 Lakh
	iii) E Journals	- 20 Lakh
B)	Data entry work	- 02 lakh
C)	Binding & maintenance of books	- 02 lakh
	Sub Total	- **64 Lakh**

Infrastructure & facility includes following sets of activities:-

A)	Chairs Approx. 100:	- 2.5 Lakh
B)	Tables Approx 20	- 1 lakh
C)	Step stols, magazine holder & display racks	- 1 Lakh
D)	Window AC (6 No.)	- 2.5 Lakh
E)	CCTV camera system	- 1 lakh
F)	2 Scanners for stock taking	- 0.4 Lakh
G)	Flooring of Mats	- 1.6 Lakh
H)	Outdoor blinders	- 1 lakh
	Sub Total	**11 Lakh**
	Grand Total	**75 Lakh**

Annexure-XI

Proposal for improving employability

Objectives:

1. To improve the overall employability of the students.
2. To improve quality of employment in terms of pay package and job security.
3. To improve students/employee retention by the employer.
4. To improve category wise employability.

How to achieve the objectives?

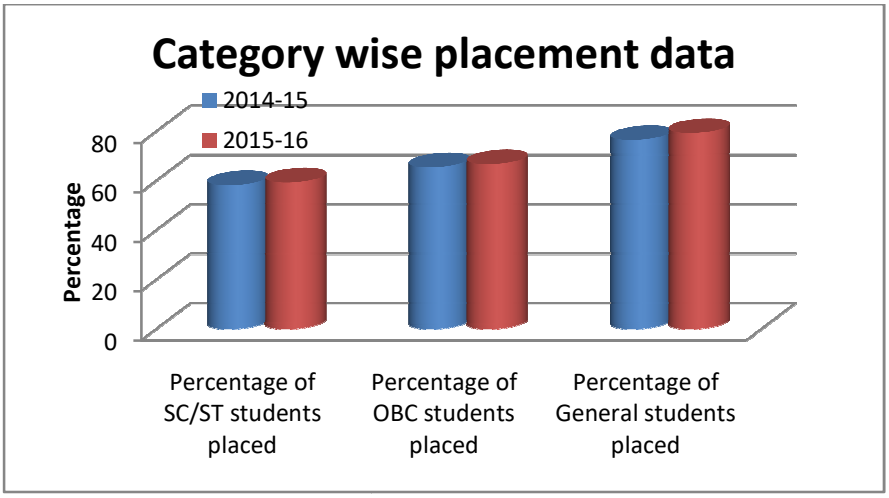
Following steps are proposed to achieve the above stated objectives:

1. Identify the week and strong personality aspects of the students: A psychometric study is required for each and every student. This study will help to understand the knowledge, abilities, attitudes, and personality traits of the students.
2. Utilizing the results of study for identifying training needs.
3. Arranging remedial classes for week students.
4. Bringing all the students to a comparable level.
5. Helping students to select the right profession depending their personality traits and social background. This can be done by carrier counselling.
6. Arranging Campus Recruitment Aptitude Training (CRAT) sessions for the students. These sessions will include:
    I. Skills required by the Industry
    II. The Hiring Process
    III. Resume Building
    IV. Group Discussion
    V. Personal Interview
    VI. Dressing to Win
7. Arranging guest/inspiration lectures from the management/industry experts.
8. Arranging frequent industrial visits for the students so that they can know about the latest technology being used in the industry. These visits will also help them to understand the environment of the industry so that they can decide their carrier plan.
9. Encouraging students to improve their industrial training learning and doing good projects. Students can be encouraged by giving prizes in terms of money.

Study done:

A study was conducted to know the placement results of the students from various categories. The results are shown below:

Year	Total SC/ST Students	Placed SC/ST Students	Percentage of SC/ST students placed	Total OBC Students	Placed OBC Students	Percentage of OBC students placed	Total General Students	Placed General Students	Percentage of General students placed
2014-15	43	25	58.14	81	53	65.43	68	52	76.47
2015-16	54	32	59.26	96	64	66.67	82	65	79.27



A study was also done for the performance of students in university exams during 2015-16 as follows. The study clearly shows that there is a gap in performance of students of OBC and Sc students. Therefore there is a need for taking remedial measures to improve their performance in university exams as well as in placement.

Category of Student	Number of student passed			Total Students	% of students category wise	%age of students		
	>75 %	<75% and >65%	<65%			>75 %	<75% and >65%	<65%
General	16	35	3	54	35.76	29.63	64.81	5.55
OBC	11	50	9	70	56.36	15.71	71.43	12.86
SC	2	19	5	26	17.22	7.63	73.08	19.23

St	0	0	1	1	0.66	-	-	1.85
Total	29	104	18	151	100			

Proposed activities and tentative cost:

S. No.	Activity	Tentative cost per year
1.	Psychometric study	4 Lacs
2.	Carrier counselling	1 Lacs
3.	Remedial lectures	1 Lacs
4.	Campus Recruitment Aptitude Training (CRAT)	10 Lacs
5.	Industrial Visit	5 Lacs
6.	Inspiration/Motivational/Expert Lectures	5 Lacs
7.	Language Lab	1 Lacs
8.	Industry-Institute Interaction meet	3 Lacs
9.	Project awards	20 Lacs
	Total	**50 Lacs**