

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

**INSTITUTIONAL DEVELOPMENT PROPOSAL
(REVISED – June, 2015)**

for

**Sub-Component 1.1: Strengthening Institutions to improve Learning
Outcomes and employability of Graduates**

(To be submitted after obtaining the clearance for the Eligibility Proposal)

From

College of Technology and Engineering, Udaipur
MAHARANA PRATAP UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, UDAIPUR
(Raj.) – 313 001

1. INSTITUTIONAL BASIC INFORMATION

(Note: Please insert the name of applicant institution and the Sub-component number in the footer on each page of the proposal.)

1.1 Institutional Identity:

- Name of the Institution : College of Technology and Engineering
- Is the Institution AICTE approved? : YES
- Furnish AICTE approval no : F. No. 765-66-203(E)Estt/95 dt. 22.7.2008
- Type of Institution : Govt. funded
- Status of Institution : Constituent Institution of Maharana Pratap University of Agriculture and Technology, Udaipur
- Name of Head of Institution and Project Nodal Officers :

Head and Nodal Officer	Name	Phone Number	Mobile Number	Fax Number	Email Address
Head of the Institution (TEQIP Chief - Coordinator)	Dr. B.P. Nandwana	0294-2470837	9414472732	0294-2471056	bpnand@gmail.com
TEQIP Coordinator	Dr. G.P. Sharma	0294-2470809	9414263366	0294-2471056	gpsharma1961@gmail.com
Project Nodal Officers for:					
Procurement	Dr. Ravi Sharma	0294-2471836	9414474968	0294-2471056	Sharmaravi_ks@rediffmail.com
Academics	Dr. Mahesh Kothari	0294-2470516	9414757550	0294-2471056	drmkothari@hotmail.com
Financial aspects	Dr. Deepak Sharma	0294-2470837	9414160221	0294-2471056	Deepshar@rediffmail.com

1.2 Academic Information:

- Engineering UG and PG programmes offered in Academic year 2014-15

S. No.	Title of Programmes	Level (UG, PG, PhD)	Duration (Years)	Year of starting	AICTE Approved Intake	Actual Intake (2014-15)
1.	B.Tech (Agriculture)	UG	4	1964	55	52
2.	B.Tech (Civil)	UG	4	2007	40	42
3.	B.Tech (Comp. Sc. & Engg.)	UG	4	2000	40	42
4.	B.Tech (Elect. Engg.)	UG	4	1996	40	42
5.	B.Tech (Electronics & Comm.)	UG	4	2006	40	42
6.	B.Tech (Info. Tech.)	UG	4	2007	60	63
7.	B.Tech (Mech. Engg.)	UG	4	1996	40	42
8.	B.Tech (Mining Engg.)	UG	4	1996	20	22

S. No.	Title of Programmes	Level (UG, PG, PhD)	Duration (Years)	Year of starting	Sanctioned Annual Intake	Actual Intake (2014-15)
9.	M.Tech (Agriculture) specialization- Soil & Water Engg.	PG	2	1978	8	7
10.	M.Tech (Agriculture) specialization - Irrigation & Water Management Engg.	PG	2	1986	8	7
11.	M.Tech (Agriculture) specialization - Farm Machinery & Power	PG	2	1978	8	8
12.	M.Tech (Agriculture) specialization - Processing & Food Engg.	PG	2	1985	8	11
13.	M.Tech (Agriculture) specialization - Renewable Energy Sources Engg.	PG	2	1986	8	7
14.	M.Tech (Computer Sc. & Engg.)	PG	2	2010	8	8
15.	M.Tech (Elect. Engg.) Power Electronics	PG	2	2010	8	10
16.	M.Tech (Mechanical Engg.) CAD/CAM	PG	2	2004	8	5
17.	M.Tech (Mining Engg.) Mine Planing	PG	2	2009	8	7
18.	M.Tech (ECE Engg.) Communication System	PG	2	2011	8	9
19.	M.Tech (Civil Engg.) Structural Engg.	PG	2	2012	8	7
20.	Ph.D. (Ag. Engg.) – Farm Machinery & Power	PG	3	1996	5	4
21.	Ph.D. (Ag. Engg.) – Soil & Water Conservation Engg.	PG	3	1996	5	4
22.	Ph.D. (Ag. Engg.) – Irrigation & Water Management Engg.	PG	3	1996	5	6
23.	Ph.D. (Ag. Engg.) – Renewable Energy Sources Engg.	PG	3	1996	5	4
24.	Ph.D. (Ag. Engg.) – Processing & Food Engg.	PG	3	1996	5	4
25.	Ph.D. (Elect. Engg.)	PG	3	2011	4	-
26.	Ph.D. (Computer Sc. & Engg.)	PG	3	2012	4	3
27.	Ph.D. (ECE Engg.)	PG	3	2012	4	3
28.	Ph.D. (Mining Engg.)	PG	3	2014	5	1

*all the UG & PG programmes accredited by ICAR

• **Accreditation Status of UG Programmes:**

Title of UG Programmes being offered	Whether eligible for accreditation or not	Whether accredited as on 31 st Dec. 2009	Whether "Applied for" as on 31 st Dec 2009
B.Tech (Agriculture)	Yes	No	No
B.Tech (Civil)	Yes	No	No
B.Tech (Comp. Sc. & Engg.)	Yes	No	No
B.Tech (Elect. Engg.)	Yes	No	No
B.Tech (Electronics & Comm.)	Yes	No	No
B.Tech (Info. Tech.)	Yes	No	No
B.Tech (Mech. Engg.)	Yes	No	No
B.Tech (Mining engg.)	Yes	No	No

• **Accreditation Status of PG Programmes:**

Title of PG Programmes being offered	Whether eligible for accreditation or not	Whether accredited as on 31 st Dec. 2009	Whether "Applied for" as on 31 st Dec 2009
M.Tech (Agriculture) specialization- Soil & Water Engg.	YES	NO*	NO
M.Tech (Agriculture) specialization - Irrigation & Water Management Engg.	YES	NO*	NO
M.Tech (Agriculture) specialization - Farm Machinery & Power	YES	NO*	NO
M.Tech (Agriculture) specialization - Processing & Food Engg.	YES	NO*	NO
M.Tech (Agriculture) specialization - Renewable Energy Sources Engg.	YES	NO*	NO
M.Tech (Elect. Engg.) Power Electronics	YES	NO	NO
M.Tech (Computer Sc. & Engg.)	NO	NO	NO
M.Tech (Mechanical Engg.) CAD/CAM	NO	NO	NO
M.Tech (Mining Engg.) Mine Planing	NO	NO	NO
M.Tech (ECE Engg.) Communication System	NO	NO	NO
M.Tech (Civil Engg.) Structural Engg.	NO	NO	NO
Ph.D. (Ag. Engg.) – Farm Machinery & Power	-	-	-
Ph.D. (Ag. Engg.) – Soil & Water Conservation Engg.	-	-	-
Ph.D. (Ag. Engg.) – Irrigation & Water Management Engg.	-	-	-
Ph.D. (Ag. Engg.) – Renewable Energy Sources Engg.	-	-	-
Ph.D. (Ag. Engg.) – Processing & Food Engg.	-	-	-
Ph.D. (Elect. Engg.)	-	-	-
Ph.D. (Computer Sc. & Engg.)	-	-	-
Ph.D. (ECE Engg.)	-	-	-
Ph.D. (Mining Engg.)	-	-	-

* All the Agricultural Engineering Programmes are accredited by the Indian Council for Agricultural Research (ICAR).

1.3 Faculty Status (Regular/On-Contract Faculty as on March 31st, 2015):

Faculty Rank	No. of Sanctioned Regular Posts	Present Status : Number in Position by Highest Qualification												Total Number of regular faculty in Position	Total Vacancies	Total Number of contract faculty in Position
		Doctoral Degree				Masters Degree				Bachelor Degree						
		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines		Engineering Disciplines		Other Disciplines				
		R	C	R	C	R	C	R	C	R	C	R	C			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15= (3+5+7+9+11+13)	16= (2-15)	17= (4+6+8+10+12+ 14)
Prof	7	28	-	-	-	-	-	-	-	-	-	-	-	28	*	-
Asso Prof	15	5	-	-	-	1	-	-	-	-	-	-	-	6	*	-
Asst Prof	58	17	-	6	-	5	-	-	-	-	-	-	-	28	18	-
Lec	-	-	-	-	-	-	15	-	3	-	20	-	-	-	-	38
Total	80	50	-	6	-	6	15	-	2	1	20	-	-	62 (47+15*)	33 (80-47)	38

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

*includes 15 research faculty also.

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	1141
2	Total women students in all programmes and all years of study in the year 2009-10	224
3	Total SC students in all programmes and all years of study in the year 2009-10	87
4	Total ST students in all programmes and all years of study in the year 2009-10	63
5	Total OBC students in all programmes and all years of study in the year 2009-10	275
6	Number of fully functional P-4 and above level computers available for students in the year 2009-10	350
7	Total number of text books and reference books available in library for UG and PG students in the year 2009-10	46,481
8	% of UG students placed through campus interviews in the year 2009-10	70
9	% of PG students placed through campus interviews in the year 2009-10	-
10	% of high quality undergraduates (>75% marks) passed out in the year 2009-10	14.47%
11	% of high quality postgraduates (>75% marks) passed out in the year 2009-10	75%
12	Number of research publications in Indian refereed journals in the year 2009-10	
13	Number of research publications in International refereed journals in the year 2009-10	
14	Number of patents obtained in the year 2009-10	0
15	Number of patents filed in the year 2009-10	0
16	Number of sponsored research projects completed in the year 2009-10	
17	The transition rate of students in percentage from 1 st year to 2 nd year in the year 2009-10 for:	
	(i) all students	73.9%
	(ii) SC	38.7%
	(iii) ST	30.4%
	(iv) OBC	68.3%
18	IRG from students' fee and other charges in the year 2009-10 (Rs. In lakh)	473.94
19	IRG from externally funded R&D projects, consultancies in the year 2009-10 (Rs. in lakh)	3.81
20	Total IRG in the year 2009-10 (Rs. in lakh)	477.76
21	Total annual recurring expenditure of the applicant entity in the year 2009-10 (Rs. in lakh)	84.85

2. INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)

2.1 Give the Executive Summary of the IDP (maximum ½ page)

The project aims to strengthen the institution with the objective of improving employability and learning outcome of the graduates. For this purpose, various activities as suggested in the PIP and documented in this proposal like strengthening laboratories and libraries, modernisation of class rooms, academic and non-academic reforms, etc. shall be undertaken. The project entails an outlay of Rs. 10.00 Crores spread in to four financial years starting from 2010-11. A significant portion of this expenditure shall be towards modernisation of laboratories and equipment, and improving competence of faculty & staff. The expenditure shall be done in the manner and format prescribed for the project with full transparency and accountability. It is sincerely expected that this project will greatly help in improving the employability and learning outcome of the graduates.

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

All the departments were asked to carry out the SWOT analysis of their departments taking view from all concerned. All the faculty members were asked to list the strengths, weaknesses, opportunities and threats as perceived by them. The SWOT points put forward by faculty members were discussed and collectively agreed upon points were listed. For many departments, the SWOT analysis meeting were conducted in more than one session. Different teachers were assigned to elicit the views of students of different classes in this regard. Our former students, who have obtained higher education from other reputed institutes, have better perceptions of relative SWOT of our institute and department. The views expressed by them from time to time were also incorporated. The views of some persons from local industry were also elicited. The summary of this SWOT analysis is present here.

STRENGTHS

- (i) The chief strength of the college is its fairly good infrastructural facilities. Almost all the departments have a separate building of their own with required space. The minimum required laboratories are functioning in almost all the departments.
- (ii) The quality of faculty is another point of strength. All the permanent faculties are highly experienced with education from institutions of repute.
- (iii) The vibrant working environment is also strength of the college. There is no politicization like in many university institutes and there is very high level of academic discipline. Once goals and objectives are set at appropriate level, all the faculty members and staff do their best to achieve them.
- (iv) The institute is a constituent college of the Maharana Pratap University of Agriculture and Technology (MPUAT), which has presence in 11 districts of south and west Rajasthan through the network of Krishi Vigyan Kendras (KVKs) or Agriculture Extension Centres. These KVKs provide a unique strength point of being able to disseminate any idea to the grass root level effectively and efficiently.

- (v) Being part of an Agricultural University, it has a branch of Agricultural Engineering with strong UG and PG courses. This provides an excellent opportunity of synergy of research efforts being leveraged towards Agriculture that is most important for the economy of the nation.
- (vi) Similarly, ours is the only institute offering the Mining Engineering branch in the mineral rich region. The institute being the only and the oldest government engineering college in the region is a natural leader in the region.

WEAKNESSES

- (i) The major weakness is acute shortage of faculty. The existing faculty is over burdened with teaching and other routine academic and non-academic chores affecting their academic pursuits.
- (ii) The shortage of supporting staff, mainly qualified staff for various laboratories, is another weakness.
- (iii) The lack of access to the major international journals, particularly in the main stream branches of engineering, is also a serious weakness.
- (iv) Though all the departments have working laboratories for almost all the courses, the equipment are obsolete. The lack of modern equipment and in particular those required for research is a weakness.
- (v) Many newer departments do not have any PG programme. A PG program is generally considered must for research environment.

OPPORTUNITIES

- (i) The college is situated in the tribal belt of south Rajasthan. It has a great opportunity to serve the disadvantaged sections of the society.
- (ii) The institute has a great potential and envisions that it has an opportunity to become the role model and leader, at least in this part of the state.
- (iii) The availability of senior faculty with exposure to the best education and research opens up the possibility of starting quality PG programmes in the contemporary areas.

THREATS

- (i) The main threat perceived is from the private engineering institutes. The private engineering colleges, flaunting their collaboration with foreign universities and swanky air-conditioned buildings may attract more talented students.
- (ii) Better pay package may see migration of senior faculty to private institutes.
- (iii) Students may prefer private colleges/universities for PG education due to their flexibility.

- **Based on SWOT analysis, provide the strategic plan developed for institutional development.**

Based on SWOT analysis, the following strategic plan is proposed to capitalize on strengths and opportunities and to tackle the weaknesses & threats:

- (i) Strengthening of existing laboratories and establishment of new laboratories

- (ii) Updation of learning resources
- (iii) Modernization of Class Rooms
- (iv) Faculty and Staff Development for Improved Competence
- (v) Academic Reforms
- (vi) Non-Academic Reforms
- (vii) Starting new PG programs and strengthening existing PG programs
- (viii) More interaction with Industry
- (ix) Academic Support for weak students

- **Show how the results of SWOT analysis are linked to the key activities proposed in the proposal.**

The results of SWOT analysis indicate that the shortage of faculty, inadequate training of the supporting staff (technical and non-technical) are the main weaknesses which are responsible for many of the problems being faced. The project will help in filling-up of the vacancies and training of all level of staff and faculty. Starting of new PG programs and strengthening of PG programs, Accreditation will give an image boost to the institution leading to brighter students seeking admission. All this will have a positive impact on the learning outcomes and employability of graduates.

- 2.3 State the specific objectives and expected results of your proposal in terms of, "Institutional strengthening and improvements in employability and learning outcomes of graduates". These objective and results should be linked to the SWOT analysis.**

The specific objectives are as follows:

- (i) **Strengthening of existing laboratories and establishment of new laboratories:** The laboratories will be modernized with new and modern equipment. This will enable the better learning of students and will facilitate starting of PG new programs.
- (ii) **Updation of learning resources:** The library will be strengthened with new books and e-Books, etc. E-Journals as well as print journals will be procured to help the faculty as well students in their research. The laboratories will be strengthened with course specific software. All these steps will ensure better teaching-learning process.
- (iii) **Modernization of Class Rooms:** The class rooms (including seminar rooms) will be modernized to have Smart boards and computers linked to LCD Projectors, which can hold greater attention of the students than mere lecturing.
- (iv) **Faculty and Staff Development for Improved Competence:** The faculty and staff will be exposed to better training in subject matter as well as pedagogy. This will ensure better teaching-learning process. Faculty qualification upgradation will also be part of this objective. Enhanced opportunities to undertake research and participate in seminar/workshops will ensure better job satisfaction and self-respect for faculty thereby mitigating their chances of migrating to private institutes.

- (v) **Staff Development:** The staff will also be adequately trained in their respective areas based on TNA. This will ensure better practical instructions to the students and better support to academic activities.
- (vi) **Academic Reforms:** Academic reforms like curricular reform to update the curriculum in line with the best in the country and meeting the market expectations will be initiated. Other reforms covering the performance evaluation of students and performance appraisal of faculty by the students will also be initiated. These are expected to result in better employability of the students.
- (vii) **Non-Academic Reforms:** Non-academic reforms like autonomy, Generation & retention of revenue and establishment of different funds for faculty development, equipment maintenance & replacement, etc. will ensure better institutional management.
- (viii) **Starting new PG programs and strengthening existing PG programs:** New PG programs shall be started in newer departments like Mech. Engg., Civil Engg., Mining Engg., etc. The existing PG programs will be strengthened. This will enhance the research output of teachers.
- (ix) **Providing Scholarships and Assistance-ships to PG students:** This will ensure better enrollment in PG programs.
- (x) **Interaction with Industry:** This will result in better perception of industry needs, increase in revenue, etc.
- (xi) **Academic Support for weak students:** This will result in better pass percentage and better placement of students.

The expected outcome of all these objectives is improved teaching-learning process; better employability of students; enhanced research competence of faculty; enhanced interaction with industry and revenue generation through consultancy, sponsored projects, etc; well managed infrastructure; improved enrollment in PG programs, etc.

2.4 Provide an action plan for: (max 1 page each)

- (a) **Improving employability of graduates:** Curricular reforms, enhancing soft skills if the students will be the main strategies for improving employability of graduates. In curricular reforms more attention shall be paid to increasing the component of practical aspects in terms of quality and/or quantity so as to align the curriculum to the needs of the industry. English language skills and personality development, which are main hurdles for employability, will be addressed.
- (b) **Increased learning outcomes of the students:**
The learning outcomes shall be improved by
 - (i) More used of e-resources for teaching
 - (ii) Emphasis on real-life problem solving
 - (iii) Provision of tutorial classes, wherever necessary
 - (iv) Well stocked library and subscription to e-journals

(c) Obtaining autonomous institution status within 2 years:

This will be achieved by

- (i) Making certain changes in the university rules and procedures, thereby allowing the college to conduct most of academic affairs autonomously. Even now, the framing of curriculum, setting of time tables for examinations, preparing panel of examiners, etc. is being done de-facto autonomously by the college. This will enable the faculty to get ready for autonomy.
- (ii) Thereafter, a formal move towards autonomy shall be made in the second year. For this purpose, the university shall be approached to modify or get modified its Act and rules.

(d) Achieving the targets of 60% of the eligible UG and PG programmes accredited within two years of joining the Project and 100% accreditation obtained and applied for by the end of the Project of the eligible UG and PG programmes:

The main challenge in obtaining accreditation, as of now, is shortage of faculty. It is expected that with the implementation of the project the GOR (Government of Rajasthan) shall permit filling up the vacancies as it is also committed to this project. In the first year, the documentation necessary for the accreditation shall be prepared. It is hoped that getting the accreditation targets by the second year should not pose much difficulty.

(e) Implementation of academic and non academic reforms (details given in Annex-1 to PIP)

- (i) The action plan for academic autonomy has already been spelled out in (c) above. For managerial, administrative and financial autonomy, necessary change in the working procedures of the university will be affected within first two years of the project.
- (ii) The four funds, namely Corpus Fund, Faculty Development Fund, Equipment Replacement Fund, and Maintenance Fund shall be established as detailed in PIP within one year.
- (iii) Revenue generation through sponsored research and consultancy shall be increased by encouraging the faculty in this direction.
- (iv) University shall be approached for filling-up the vacant posts. Pending, regular selections, the posts shall be filled up by contract faculty.
- (v) The student performance appraisal is generally satisfactory. It will be improved by taking suitable measures as given in the PIP like introducing component of formative assessment, increasing number of tests etc.
- (vi) A system of Performance appraisal of faculty by students shall be evolved by taking the faculty in confidence and getting suitable instructions in this regard from the university.

(f) Improving interaction with industry

An Industry-Institute Interaction cell and liaison with important industry in and around Udaipur will be established. The interaction with the industry shall be made with regards to curriculum revision, placement, holding of invite lectures, industry visit, taking industry relevant student projects and sponsored projects from the industry.

(g) Enhancement of research and consultancy activities

Enhancement of research and consultancy activities by the faculty will be boosted by the modernization of laboratories and library, starting of PG programs. The faculty will be encouraged to take up research and consultancy by providing incentives.

2.5 Provide an action plan for organizing 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.

- (i) Appointing faculty advisors for a group of students (10-20) for counseling and mentoring.
- (ii) Forming study groups in classes, specially 1st year, to encourage inter-student communication & discussions. The students will be encouraged to 'speak out' in the classes.
- (iii) Arranging special classes for communication skills and English language for 1st year students in the evenings and weekends. In this, more focus shall be paid to SC/ST/OBC/academically weak students.
- (iv) The various academic reforms to be undertaken as a part of this project and improvement in learning resources will also help in this regard.

2.6 Provide an action plan for strengthening of PG programmes, if any, and starting of new PG programmes.

New PG programs in Mechanical Engineering, Mining Engg., Civil Engg., etc. in appropriate specializations shall be started in phases from the year 2011-12. The necessary home work in this regard has already been done, in fact, the program structure and syllabus is already approved from the academic council for mechanical and mining programs. Once AICTE approval is received, these will be started. The PG programs in other disciplines shall also be strengthened. The component for Scholarships and Assistance-ships will greatly help in this regard.

2.7 Attach a summary of Training Needs Analysis carried out. Also, provide Faculty Development Plan for the first 18 months for improving their teaching, subject area and research competence based on Training Needs Analysis (TNA) (see Annex-VI to PIP) in the following areas.

All the faculty will be imparted training in basic and advance pedagogy. Selected faculty, as emerged from TNA, shall be deputed for subject/domain knowledge enhancement and qualification improvement. They will also be encouraged and allowed to participate in seminars, conferences and workshops, etc.

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

The identified technical staff shall be trained in the relevant areas at the organizations like National Institute of Technical Teachers & Research. This will be done in phases.

The ministerial staff will be trained in their core areas at the state level organizations for Public administration Institute, Accounts, etc.

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

The project is relevant and aligned with the state's industrial economic development plan. There is a major emphasis on the development of mining and mineral industry and backward/tribal region of the state in the plan. The project, by strengthening the institution located in mineral rich and tribal region, will contribute towards achievement of the state's plan goals.

2.10 Describe briefly the participation of departments/faculty in the IDP preparation.

The input for the preparation of IDP has been taken from all the departmental heads. The departmental information has been collected, in turn, by taking help from the faculty. Thus, all the departments and faculty have been actively associated with the IDP preparation.

2.11 Describe the Institutional project implementation arrangements with participation of faculty and staff.

The project will be implemented with the help of faculty and staff. Few key persons to be associated and responsible for certain activities are mentioned in item 1.1 of this IDP. Various committees for different task and a fully functional institute TEQIP unit shall be operational within a month.

2.12 Provide an Institutional project budget in Table-1.

Table-1

(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)]

S. No	Activities	Project Life Allocation	Financial year		
			2013-14	2014-15	2015-16 & Up to Oct. 2016
			Rs.	Rs.	Rs. in Crore
1	Infrastructure improvements for teaching, training and learning through:		2651883	12371794	3.90
	(i) Modernization and strengthening of laboratories				
	(ii) Establishment of new laboratories for existing UG and PG programmes and for new PG programmes				
	(iii) Modernization of classrooms*				
	(iv) Updation of Learning Resources				
	(v) Procurement of furniture				
	(vi) Establishment/Upgradation of Central and Departmental Computer Centers*				
	(vii) Modernization/improvements of supporting departments*				
	(viii) Modernization and strengthening of libraries and increasing access to knowledge resources				
(ix) Refurbishment (Minor Civil Works)*					
2	Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines		0	0	0.90
3	Enhancement of R&D and institutional consultancy activities*		0	0	0.20
4	Faculty and Staff Development (including faculty qualification upgradation, pedagogical training, and organising/participation of faculty in workshops, seminars and conferences) for improved competence based on TNA		717316	1654667	0.60
5	Enhanced Interaction with Industry		0	0	0.40
6	Institutional management capacity enhancement		0	520709	0.25
7	Implementation of institutional reforms		0	112360	0.4
8	Academic support for weak students under the aegis of Finishing School		0234681	142652	0.30
9	Technical assistance for procurement and academic activities		-	-	0.22
10	Incremental Operating Cost		598011	800011	0.85
TOTAL			4201891	15602193	8.02

2.13 Provide category wise expenditure details in Table-2.

Table-2 : CATEGORY WISE EXPENDITURE DETAILS

S.No.	Activities	Project Life Allocation	Financial year		
			2013-14	2014-15	2015-16 & Up to Oct. 2016
			Rs.	Rs.	Rs. in Crore
1.	Equipment		0	10913139	2.82
2.	Furniture		239865	0	0.25
3.	Books & LRs & Softwares		2412018	1458655	0.34
4.	Civil Works		0	0	0.50
5.	Assistanceship		0	0	0.90
6.	Training / workshops to be conducted		-	-	0.6
7.	Faculty Development		717316	1654667	0.6
8.	Institutional management capacity enhancement		0	520709	0.36
9.	Consultancies secured		0	0	0.2
10.	Incremental Operating Cost		598011	800011	0.85
11.	Implementation of Institutional Reforms			112360	0.4
12.	Academic Support for weak students		234681	142652	0.2
	TOTAL		4201891	15602193	8.02

2.14 Provide the targets against the deliverables listed in Table-3.

Table-3
Project Targets for Institutions under Sub-component 1.1

S. No	Deliverables	Base-line	Targets to be achieved	
			At the end of 2 years of joining the Project	By project closing
1.	Number of students registered for	9	50	80
	(a) Masters in Engineering programme (b) Doctoral programme in Engineering	4	8	10
2.	Revenue from externally funded R&D projects and consultancies in total revenue (Rs. in lakh)	3.81	20.00	40.00
3.	Number of publications in refereed journals			
	(a) National (b) International	30 13	50 30	70 40
4.	IRG as % of total annual recurring expenditure	---	20%	50%
5.	Number of co-authored publications in refereed journals			
	(a) National (b) International		60 40	80 50
6.	Student credentials			
	(a) campus placement rate of			
	• UG students	70%	85%	> 95%
	• PG students	---	50%	> 90%
	(b) average salary of placement package for (Rs. in lakh)			
	• UG students		4.0	6.0
	• PG students		5.0	7.0
7.	Number of collaborative programmes with Industry	0	5	7
8.	Accreditation status (obtained and applied for)	0	Minimum 60% of UG +PG	100% of eligible UG +PG programmes
9.	Vacancy position for faculty and staff		Vacancy reduced to 10% or less	Zero
10.	Percentage of regular faculty having a Masters Degree or a Doctorate Degree in Engineering disciplines		Increased by 20% and 10% respectively over base line	Increased by 40% and 20% respectively over base line
11.	Transit rate from 1 st to 2 nd year for the following:			
	• All Students	73.9%	85%	95%
	• SC and ST Students	38.7%/30.4%	60%	> 90%
	• OBC Students	68.3%	80%	95%
	• Women Students	92%	96%	> 98%
12.	Autonomy status		Required to be obtained	NA
13.	Enrolment of faculty with only Bachelor Degree for qualification upgradation		At least 50% at the parent institution or	100%

S. No	Deliverables	Base-line	Targets to be achieved	
			At the end of 2 years of joining the Project	By project closing
			25% at other institution	
14.	Any other academic deliverables (maximum 3)			
(i)				
(ii)				
(iii)				

¹ These pertain to the entity participating in the Project which may either be the whole stand alone institution or the Faculty / Department / constituent institution of a University or Faculty/Department of a Technical Deemed University.

2.15 Give an action plan for ensuring that the project activities would be sustained after the end of the Project.

The project activities would be change the mindset of the administration and the faculty and it will be the most important factor for their sustainment after the end of the project. The increase IRG, provision for autonomy and retention of IRG, the funds established as the part of this project will provide the financial viability for the sustenance of these activities.

2.16 Provide a Procurement Plan for the first 18 months for Goods and Civil Works in Table-4 and Consultant Services in Table-5 with budget and timeframe.

The data in Tables 5 and 6 require precise dates for various activities. Therefore, these cannot be filled at this stage as it depends upon the time available after the funds release for various activities to be undertaken in regards to the purchases. These will be provided at a later date.

Annexure

Section (A): Furniture, Software, Books Learning Resources and Civil Works

FURNITURE:					
Package No.	Name of Department	Item(s)	Qty	Unit Cost (Rs. Lakhs)	Total Cost (Rs. Lakhs)
F1 (9.732)	Mechanical	Book cases	8	0.175	1.40
	Electrical	Task Chairs	55	0.048	2.64
	Mining	Chairs(5001-T)	5	0.05	0.25
	Mining	Almirah Steel	5	0.134	0.67
	Electronics	Book cases	2	0.175	0.35
	Computer	Almirah Steel	8	0.134	1.072
	Computer	Office Tables	8	0.125	1.00
	RES	Conference Table(Encarta)	20	0.055	1.10
	PFE	Book cases	5	0.175	0.875
	PFE	Office Tables	3	0.125	0.375
F2 (14.581)	Mechanical	Faculty Table	6	0.35	2.10
	Mechanical	Faculty Chairs	6	0.08	0.48
	Mechanical	Waiting Area Chairs	3	0.25	0.75
	Mechanical	Executive Table	1	0.74	0.74
	Electronics	Table (Godrej-T-III)	3	0.088	0.264
	Electronics	Visitor Chair (Godrej Bravo)	6	0.054	0.324
	Electronics	Visitor Chair (Godrej FU1007)	8	0.039	0.312
	Electronics	High Back Chair (Godrej Karena)	3	0.13	0.39
	Electronics	Revolving Stool	20	0.038	0.76
	Civil	Double seater tables/desk	30	0.0937	2.811
	Civil	Waiting Area Chairs	1	0.25	0.25
	Mining	Computer Tables	5	0.06	0.30
	Mining	Faculty Table	2	0.35	0.70
	Library	Library Racks	5	0.175	0.875
	FMP	Desklet Chairs for seminar room	20	0.05	1.00
	Institute	Chairs for QEEE	50	5.05	2.525
	F3 (2.5)	Computer Science	Book Cases	5	0.20
Computer Science		File Cabinets	5	0.20	1.00
Electronics		Office Chairs	10	0.05	0.50
F4	Computer	podium	8	0.12	0.96
SOFTWARES:					
SW1	Civil	Software NISA (Civil)	1	3.50	3.50

SW2	Mining	GIS software	1	5.00	5.00
BOOKS AND LEARNING RESOURCES:					
Package No.	Name of Department	Item(s)	Qty	Unit Cost (Rs., Lakhs)	Total Cost (Rs. Lakhs)
LR2 (9.336)	Institute Level	Device EyeRIS Micro 6090UST with Visual Touch proprietary technology & proprietary teaching software.	15	0.58	8.70
		EyeSIGHT Document Camera Solution	12	0.053	0.636
LR3 (8.0)	Institute Level	Supply of B.Tech Curriculum for Mechanical, Electrical, Electronics, CSE, I.T. and Civil Engineering along with integrated virtual labs.	1	8.0	8.0
LR4	Mechanical	Abaqus Research Edition Software	1	4.00	4.00
LR5	Mechanical	Solidworks software	1	6.00	6.00
LR6	Computer Science	System C Development Plateform	10	0.60	6.00
Package-1 (LIB)	Library	E-JOURNALS packages	1	4.75	4.75
Package-2 (LIB)	Library	E-JOURNALS packages	1	10.00	10.00
Package-3 (LIB)	Library	e-Books for different disciplines	1	5.00	5.00
Package-4 (LIB)	Library	e-Books for different disciplines	1	3.00	3.00
Package-5 (LIB)	Library	Books different disciplines	1	1.25	1.25
Package-6 (LIB)	Library	E-journal of Elsevier for 2015	1	5.00	5.00
CIVIL WORKS:					
Package-AG (CW) (14.0)	PFE	Refurbishment of PFE lab repairs	1	5.00	5.00
	FMP	Refurbishment of FMP dept labs	1	4.00	4.00
	RES	Refurbishment of class rooms for renewable energy department	1	5.00	5.00
Package-Mech (CW)	Mechanical	Repair & refurbishment of Heat Engines lab	1	13.00	13.00
Package-Lib (CW)	Library	Refurbishment of library	1	12.00	12.00
Package-Civil (CW)	Civil	Refurbishment of labs in Civil Engg	1	7.00	7.00
Package-Misc (CW) (4.0)	Mining	Refurbishment of Mining engg dept labs	1	1.50	1.50
	Electrical	Refurbishment of electrical engg dept labs	1	1.50	1.50
	Basic Science	Refurbishment of first year instructional block	1	1.00	1.00
TOTAL COST (INR. LAKH)					148.609

Section (B): Equipments

Package	Department	Item	Qty	Unit cost	Total Cost (Rs., Lakhs)
Inst-Desktop	College	Desktops	50	0.42	21.00
CS/P2	Computer Science	High end server and clients	1	10.50	10.50
CS/P3	Computer Science	Wireless sensor network development system	1	10.00	10.00
CS/P4	Computer Science	Network simulation tool suite	1	10.30	10.30
CS/P5	Computer Science	High Definition Visual Communication system	2	3.00	6.00
CS/P6	Computer Science	On-line UPS	2	1.30	2.60
EE-P1	Electrical	Wind Turbine Simulator	1	9.00	9.00
EE-P2 (7.5)	Electrical	Solar Energy Trainer	1	1.00	1.00
	Electrical	Fuel Cell Trainer	1	1.50	1.50
	Electrical	Wind Energy Trainer	1	2.00	2.00
	Electrical	Hybrid Solar and Wind Energy Trainer	1	3.00	3.00
EE-P3 (9.30)	Electrical	Intelligent Power Factor Controllers	5	0.80	4.00
	Electrical	Solar/Wind generator Based STATCOM Controller	1	5.30	5.30
EE-P4 (9.46)	Electrical	wind generator based 3-phase/ 1-phase ac source	1	5.66	5.66
	Electrical	Solar Generator Based 3-phase AC Source	1	3.00	3.00
	Electrical	Solar module	1	0.80	0.80
EE-P5 (9.00)	Electrical	Motor for electric vehicle	6	0.50	3.00
	Electrical	Motor Speed Controller for AC/DC Motor	4	0.75	3.00
	Electrical	Motor speed controller for hybrid electric vehicle	2	1.50	3.00
EC-P1 (19.70)	Electronics and Communication Engineering	Wireless sensor network development system	1	0.75	0.75
		Ebedded System trainer	1	0.75	0.75
		Vector Network Analyer (10GHz)	1	18.2	18.2
EC/P3 (11.50)	Electronics	Advance Optical Communication Trainers	1	1.70	1.70
	Electronics	Electronic Workbenches	5	1.00	5.00
	Electronics	PC controlled anteenaa fabrication machine	1	4.80	4.80
CE-P1	Civil	Fatigue Testing Machine for Concrete Beams	1	15.50	15.50
CE-P2	Civil	Automatic Compression Testing Machine	1	9.00	9.00
CE-P3	Civil	Impact Testing Machine	1	7.90	7.90
CE-P4	Civil	Creep test rig system	1	18.75	18.75

CE-P5	Civil	Vibrating table for determination of transmissibility ratio	1	3.60	3.60
MI-P1	Mining	Gyro station	1	25.10	25.10
MI-P2	Mining	Micromate	1	5.00	5.00
MI/AE-P1 (4.6)	Mining	Self Contained Breathing Apparatus	2	0.50	1.00
	Mining	Permeability Meter	1	2.00	2.00
	Mining	Global Positioning System	1	1.00	1.00
	Mining	Distometer	1	0.60	0.60
MI/AE-P2	Mining/SWE	DGPS	2	9.0	18.0
ECME-P1 (6.8)	Electronics/Mech.	Multimedia projectors for classrooms	8	0.75	6.00
	Electronics	Visualizer cum projector	1	0.80	0.80
EEBS-P1 (1.3)	Basic Science	L.F Oscillator	2	0.10	0.20
	Basic Science	Electric Stabilizer	2	0.10	0.20
	Basic Science	Dispersive Power Setup	2	0.12	0.24
	Basic Science	LCR Circuit resonance (Series & Paraller)	2	0.08	0.16
	Basic Science	Differection Grating Setup	2	0.12	0.24
	Basic Science	Newton's Ring Setup (with sodium lamp)	2	0.08	0.16
	Basic Science	Spot Reflecting Galvanometer	2	0.05	0.10
AE-FMP-P1	FMP	45 hp tractor of standard make	1	5.50	5.50
AE-FMP-P2 (5.25)	FMP	Load transducers of 200 kg, 500 kg, 1000kg and 2000kg with data logger	1	4.25	4.25
	FMP	10 hp Variable speed DC drive for traction lab with control panel and other accessories such as cable, switches panel etc.	1	1.00	1.00
AE-FMP-P3	FMP	Working cut model of complete tractor	1	6.50	6.50
AE-SWE-P1	SWE	Ground Penetrating Radar	1	17.00	17.00
AE-PFE-P2	PFE	Colormeter	1	16.00	16.00
AE-RES-P1	RES	Indoor Air Quality Monitor	1	6.00	6.00
AE-RES-P2	RES	Automatic Nitrogen analyser	1	7.00	7.00
ME-P1	Mechanical	NC EDM	1	12.50	12.50
ME/P2 (18.00)	Mechanical	6-axis robot	1	12.00	12.00
	Mechanical	Stepper motor robotic trainer	1	6.00	6.00
ME-P3	Mechanical	Solar vapour absorption refrigeration cycle test Rig	1	2.00	2.00
ME-P4	Mechanical	3D Prototyping Printer for CAE	1	6.00	6.00
ME-P6	Mechanical	CNC Lathe	1	14.00	14.00
CS/EC/CE-P1	Comp/E & Com/Civil	Split Air conditioner	17	0.40	6.80
G&S-P1	College	Sports and games Items	1	1.86	1.86

CS/Accessory-P1 (1.75)	Mining	Scanner	1	1.00	1.00
	Mech/Civil/Basic Science	Printer cum Scanner	5	0.15	0.75
PLACEMENT	College	Items for Placement Cell	1	1.00	1.00
Inst/-P1	College	Laptops	11	0.60	6.60
Inst-QEEE	College	Equipments for QEEE	1	7.50	7.50
TOTAL COST (INR. LAKH)					392.67



2.17 Provide any other information related to special academic achievements as given in Eligibility proposal of the institution.

The institute is one of the oldest institutions in the state. It is accredited by the ICAR. It has a good track record in conducting academic affairs with utmost sincerity. The university results are always declared on time.


DEAN
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