

Action taken on the NAAC peer team recommendations – 2009 Visit

May 5, 2016

**Submitted to
*National Assessment and Accreditation Council
Bangalore***



**Thapar Institute of Engineering and Technology University,
Patiala (Punjab) – India**

MAY 2016

NAAC Peer Team Visit May 4-7, 2016

Action taken on the NAAC peer team recommendations – 2009 Visit

1. Recruit and retain qualified faculty and staff at various levels.

The largest constraint in the growth of higher education is lack of good faculty. The University makes special efforts for recruitment and retention of quality faculty. The desired profile of the faculty at all levels has been clearly defined. The positions have been publicized widely through print and electronic media. The impact of the change has been clearly visible through larger interest among prospective faculty to join the University. Better qualified faculty members have applied. A meticulous process of evaluation that includes seminar presentation and personal interviews with a carefully chosen panel of experts is adopted. All full time positions offered had Ph D degrees. To provide impetus to the effort and facilitate selection and induction of highly qualified faculty members at the entry and higher levels, we now entertain applications throughout the year. The compensation paid to faculty is significantly higher than our peers in other Universities to attract the best talent.

Recruitment of Qualified Faculty:

We have put in place a set of norms for all levels of faculty in the system. These norms include teaching experience, post-PhD experience, SCI Publications, Project funding and PhD guidance.

Retaining the Qualified Faculty:

Apart from giving better perks, we have put in place several benefits for the faculty members in the University. These include PF Management Share (12% of Basic, AGP and DA) and Professional Development Allowance (PDA). The faculty wards are admitted to various courses on merit basis (1% reservation). We also offer full fee waiver for one child for education and full fee waiver for 2nd child on merit basis. We also award performance incentives based on teaching, research and project funding parameters. An initial research grant up to rs. 5 lakhs and a laptop computer is given to all new incumbents. We also provide funds to faculty members for participation in Conferences abroad.

The details of faculty recruitment (new recruitments –external) and internal promotions during 2015 to give an idea are as under.

Fresh Recruitment in 2015

Designation	Applications Received	Joined
Professor	29	00
Associate Professor	79	00
Assistant Professor	1219	22
Visiting Assistant Professor	130	05

(From IITs) – Direct campus placement of PhD students		(2 out of these selected for regular position)
Lecturer (C)	847	27+6*

**Faculty Hiring-2016
Applications Status**

Department	AP	ASTP1	ASTP2	ASTP3	LCON	PROF	Grand Total
BT				1			1
CBH	1			3			4
CHE	1			5		1	7
CIE		11	12	5	52		80
COE	13	35	24	22	189	3	286
ECE	9	29	30	29	175	1	273
EIC	9	21	14	21	144		209
LMTS				1			1
MEE	7	38	28	30	147		250
MSS			1				1
PHY	11	23	22	46	20		122
SEE	1			1			2
SOM	8	52	29	22	16	2	129
Grand Total	60	209	160	186	743	7	1365

Recruitment of Visiting Assistant Professors from IITs/NITs

Name of IIT/NIT	Date of visit	Academic unit	No. of candidates appeared	Total	Number of selected candidates
IIT, Delhi	25 Jan, 2016	Mechanical	02	02	01

IIT, Roorkee	13 Feb, 2016	Civil	03	27	02 (1 in MED & 1 in CSED)
		Computer	3		
		Electrical	1		
		Electronics	1		
		Mathematics	7		
		Physics	2		
		Mechanical	10		
IIT, Chennai	29 Feb,2016	Electronics	1	04	02 (1 in ECED & 1 in MED)
		Mechanical	3		

2. Make curricular changes and introduction of new courses more frequently.

The curriculum changes are now made at least once in four years. All the courses and programmes underwent revisions in 2014 and again in 2015 to make them outcome based and project led.

The following new programmes have been added since last NAAC visit (2009).

UG program:

- Mechatronics – 2012
- Software Engineering & Management – 2014
- Mechanical (Production) Engineering – 2014
- Electronics & Computer Engineering – 2015

PG program:

- Computer Applications – 2010
- Civil Infrastructure Engineering – 2011
- Thermal Engineering – 2011
- Information Security – 2012
- Wireless Communications – 2012
- Biotechnology – 2012
- Energy Technology & Management – 2014
- M.Sc. Biochemistry – 2014

3. In material science programme to develop LCD display devices and practical fuel cells as industrial products, and going into manufacturing and commercialization.

The curriculum of Materials Science Program has been thoroughly reviewed and revised in the year 2014 by keeping in mind the guidelines / comments / suggestions received from experts

and recommendations of the Board of Studies of SPMS at TU. School is constantly working on Development of CLD devices and Fuel Cells which could lead to their manufacturing and commercialization. Several assignments are in progress at Doctoral level to meet these objectives.

We synthesized many sealing, electrolytes and cathode materials for solid oxide fuel cell (SOFC) applications. Some of the sealing materials showed very good hermetic interface with different components of SOFCs. Based on our study, we suggested some sealing materials to Central Glass and Ceramic Research Institute (CGCRI) Kolkata (R.N. Basu group) to test these materials in commercialized prototype SOFCs. In Reference to LCD display, Dr. Raina is working in this field.

4. To initiate and nurture projects with tangible output in terms of innovative technology and products in several departments.

There has been a gradual increase in the research activities, wherein more funds were received for sponsored projects, higher number of Ph. D. students got registered and resource generation through consultancy also increased. In 2015, out of the sponsored projects received from various funding agencies (UGC, AICTE, DST and DOE, etc), 18 were completed during the year and 127 projects are ongoing and progressing towards their completion. 21 new projects were received during the year 2014 - 2015. The total funding received during the year was Rs. 466.35 Lacs. During the year, 345 technical papers were published in reputed national and international journals listed in SCI/SSCI, and several research papers were presented/published in conferences, seminars and workshops. The data on research metrics is given below:

Sponsored Projects	2011-12	2012-13	2013-14	2014-15
Received	37	56	25	21
Ongoing	89	116	106	127
Completed	15	09	17	18
Funds Sanctioned (Rs. in lakh)	613.07	871.88	467.49	466.35

Publications	2011-12	2012-13	2013-14	2014-15
In Peer reviewed journals listed in	302	320	345	460

SCI/SSCI with Impact Factor				
In Non SCI Journals	220	276	164	226
In seminars, conferences and workshops	258	245	276	160

Some examples of projects with tangible output in terms of innovative technology and products in several departments.

School of Chemistry and Biochemistry:

1. Dr. Satyendra Kumar Pandey has filed US Patent which was granted recently and also has filed one Indian Patent Patent No. 324/DEL/2015.

Project Title: The Total Synthesis of the Antimalarial Natural Products, Flinderoles DST project letter NO. SB/FT/CS-178/2011

GRANTED US Patent as given below-



(12) **United States Patent**
Pandey et al.

(10) **Patent No.:** **US 9,284,263 B1**
(45) **Date of Patent:** **Mar. 15, 2016**

(54) **PROCESS FOR THE PREPARATION OF(R)-LACOSAMIDE**

(56) **References Cited**

(71) Applicants: **Satyendra Kumar Pandey**, Patiala (IN);
Yuvraj Garg, Patiala (IN)

FOREIGN PATENT DOCUMENTS
WO WO 2013/030654 * 3/2013
OTHER PUBLICATIONS

(72) Inventors: **Satyendra Kumar Pandey**, Patiala (IN);
Yuvraj Garg, Patiala (IN)

Park, Journal of Medicinal Chemistry, 2009, 52(21), 6897-11.*
LeTiran, Biorganic & Medicinal Chemistry, 2001, 9(10), 2693-2708.*
Trost et al, Angewdt Chemie, 42(48), 5987-5990, 2003.*
Raghunath et al, Tetrahedron Lett, 2005, 46(47), 8213.*

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

* cited by examiner

Dr. Amjad Ali Filed two Indian Patent from the project

1. 2358/DEL/2012

Project: Zirconia supported solid catalyst for simultaneous transesterification and esterification of high free fatty acid containing triglycerides, Funding agency, CSIR (sanction letter no. 01 (2503)/II /EM R-II)

2. 3358/DEL/2013

Project: Synthesis and evaluation of multifunctional diesel fuel additives from vegetable oils, funding agency, DST (SR/FTP/CS-30/2007)

Dr. Bonamali Pal research Achievements:

Photocatalytic transformation of organic functional groups by various metal (Fe+3) -loaded titania catalysts. Nidhi Gupta	M.Sc thesis	2009	PI
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This Fe-TiO₂ photocatalysts is used by a company (Dolhpin float Ltd, PUNE, India) for instant production of CO₂ from carbohydrate solution under UV light for Mosquito killing device useful in rural village

Department of Chemical Engineering:

Dr. H. Bhunia has filed two patents with Reliance Industries and one patent filed from the R&D project.

1. Stabilized inorganic oxide supports and adsorbents derived there from for carbon dioxide capture (Patent No.: 866/MUM/2014) NATIONAL
2. Stabilized inorganic oxide supports and adsorbents derived there from for carbon dioxide capture (Patent Application No. PCT/IB2015/050636) INTERNATIONAL
3. Project Title: Preparation and characterization of polylactide (PLA) polyethylene blends and its degradability studies. (Scheme no.: 02(0035)11/EMR/2012-2015)

Patent Filed: Low cost apparatus for biodegradability measurement of polymer materials (Indian Patent filing Initiated)

Dr. Rajeev Mehta:

Work Title: Fixation of propylene oxide and Carbon dioxide to poly(propylene carbonate) and cyclic carbonate.

The work was recognized at national level and awarded the Joint Runners up Award at the 5th National Award for Technology Innovation-2014 by the Ministry of Chemicals & Fertilizers, Department of Chemicals & Petrochemicals, Govt of India, in the category of Research in the Field of Polymer Science & Technology for the Innovation in "Chemical Fixation of Carbon dioxide and Propylene Oxide to Poly(propylene carbonate) and Cyclic carbonate".

5. To review and revise the curricular contents of the post graduate programmes so as to minimize the contents already covered in under-graduate programmes.

The curriculum has been thoroughly revised for all PG programs in line with the recommendations. The details will be shared during the site visit.

Following new UG courses have been added or revised in different PG programmes during the last five years in line with incorporating contemporary knowledge.

CODE	Subject	2012
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UEE712	ELECTRICAL ENGINEERING MATERIALS	
UIE302	WORK STUDY AND ERGONOMICS	
UIE403	ENGINEERING ECONOMY	
UIE404	FACILITIES DESIGN	
UIE405	PRODUCTION PLANNING AND CONTROL	
UIE503	LEAN MANUFACTURING	
UIE504	VALUE ENGINEERING	
UIE901	ADVANCED MANUFACTURING SYSTEMS	
UMT301	ANALOG AND DIGITAL ELECTRONICS	
UMT302	MECHATRONICS MEASUREMENT SYSTEM	
UMT401	COMPUTER AIDED DESIGN AND ANALYSIS	
UMT402	SENSORS AND TRANSDUCERS	
UMT501	SIGNAL CONDITIONING AND DATA ACQUISITIONING SYSTEM	
UMT601	INSPECTION AND QUALITY CONTROL	
CODE	Subject	2013
UIE406	QUALITY ENGINEERING	
UIE407	ERGONOMICS ENGINEERING	
UIE408	ADVANCED MANUFACTURING PROCESSES	
UIE601	INDUSTRIAL AUTOMATION	
UIE902	INDUSTRIAL SYSTEM DESIGN	
CODE	Subject	2014
UCB008	APPLIED CHEMISTRY	
UCS804	ETHICAL HACKING	
UCS805	BUSINESS INTELLIGENCE	
UDP001	INTRODUCTION TO CHEMICAL ENGINEERING	
UDP002	INTRODUCTION TO CIVIL ENGINEERING	
UDP003	INTRODUCTION TO COMPUTER ENGINEERING	
UDP004	INTRODUCTION TO ELECTRICAL ENGINEERING	
UDP005	INTRODUCTION TO ELECTRONICS INSTRUMENTATION ENGINEERING	
UDP006	INTRODUCTION TO ELECTRONICS ENGINEERING	
UDP007	INTRODUCTION TO BIOCHEMICAL ENGINEERING	
UDP008	INTRODUCTION TO MECHANICAL ENGINEERING	
UDP009	INTRODUCTION TO SOFTWARE ENGG. & MANAGEMENT PROFESSION	
UEC693	CAPSTONE PROJECT - PART A	
UEE845	MICROCONTROLLERS AND APPLICATIONS	
UES008	ENGINEERING THERMODYNAMICS	
UHU002	BUSINESS AND TECHNICAL COMMUNICATION	
UMT591	SUMMER TRAINING	
UMT691	PROJECT SEMESTER	
UPH002	NUCLEAR POWER ENGINEERING	
UPH003	RENEWABLE ENERGY MATERIALS	
UTA005	INTERNET AND JAVA PROGRAMMING	
UTA006	WEB DESIGNING	

Apart from above 483 no. of new courses have been added in different PG programs (for details please see the attachment).

6. Avoid falling into the danger too much in-breeding with Ph.D degree recipients from this university continuing to stay in the University for Academic Activities.

The University has taken a decision to not to hire any of our PhD degree recipients for permanent faculty positions unless they have served for at least three years in an Institution of repute.

We discourage in-breeding and PhD recipients from this University are encouraged to take training from other reputed institutions. However, in some areas where we are not able to attract faculty from good institutions, we do take our own PhD students who are very good.

7. To popularize the university in foreign countries and attract more students from abroad.

Thapar Institute of Engineering and Technology University has made teams to popularize the university in Gulf and SAARC countries. Recently we have made visits in these countries to attract the students to our university. In the past years we have conducted seminars to meet the NRI students and parents to highlight the culture of the university along with the learning, overall development and benefits that the students will have by studying at Thapar Institute of Engineering and Technology University. We are also developing strategies to retain and draw more number of students from Gulf and SAARC countries.

Various teams comprising of faculty members have visited the following countries for admission of the students under the category of FN/NRI since 2013:

DOHA, MUSCAT, KWUAIT, DUBAI, ABU DHABI, NEPAL, BHUTAN, SRILANKA, INDONESIA.

These visits have helped the University to increase the strength of the students under this category.

The data is given below:

2012-13	06
2013-14	10
2014-15	03
2015-16	11
2016-17	16 (Applications received so far)

8. Involve teachers of other universities in paper setting and evaluation.

Thapar Institute of Engineering and Technology University has initiated reforms in the way, examinations are conducted. In the contemporary set up, the concerned instructor prepares the question paper along with model solutions to each question and seeks feedback from a faculty colleague from the cognate area. The same is then sent for vetting to an outside expert (Trinity in this case). After the conduct of the examination, the marks are uploaded on an academic software which generates an excel sheet listing the marks obtained by each student in all the subjects. An examination board is then convened consisting of internal and

at least one external member who reviews sample answer scripts, projects and the marks obtained by the students.

9. Develop question banks in all subjects.

The question bank for all online examinations has been developed and is being used. Several members of academic staff uses question banks for conduct of MCQ quizzes etc.

Question paper given in both MST & EST of each semester are archived in Central Library (as per detail below). This serves as a question bank for students at all times. The details of the same are enclosed herewith for your ready reference.

Status of Question Papers Archived on Library Server						
	January-June		July to December		E2D(Feb)	E2D(July)
	MST	EST	MST	EST		
2010	261	273	317	336		
2011	299	288	292	310	132	
2012	265	201	320	314	187	138
2013	236	309	325	336	154	148
2014	266	288	216	321	170	154
2015	301	321	217	338	110	
2016	File Recd. On 20.04.16 and scanning and uploading still going on					

10. Major revision in syllabi to be carried out every three years; minor changes to be carried regularly based on the market requirements.

Major revision in syllabi of all the programmes UG & PG was carried out in 2009 & 2014. Capstone project & Design project were also added in the schemes for the students admitted in 2012 and onwards. Also in the year of 2015 major revision was carried out in the light of contemporization with TCD. Scheme for 2014 was merged in the new scheme of 2015.

11. Parents-Teachers Associations may be formed.

Thapar Institute of Engineering and Technology University has no formal Parents-teachers Associations. The university however shares the student performance and attendance with the parents through an ERP system. The parents of the students are informed about the performance of their ward through SMS and letters.

Although there is no formal parent-teacher association in the university, but still the parents are kept abreast of their wards performance.

- The parents are informed about the CGPA of their ward every semester, through the office of the Registrar. The students also have access to their wards performance through the web-kiosk facility available on the university website.
- The letters are sent to the parents of such students whose attendance is not fulfilling the minimum laid down criteria. This is done at the middle of the semester and such parents are also

advised to meet the concerned teachers as well. The letters are sent through the office of the Registrar after every faculty member submits the list of such students, for the courses they are teaching.

- The parents of such students, who are likely to fail the minimum criteria requirement for promotion to second and third year, respectively, are also informed through the office of Registrar, so that corrective action can be taken. Such students and their parents are advised to meet the Deans, of Students and Academic Affairs and in some cases the Student counselor as well.