Minutes of Meeting					
Meeting Date	18th Nov 2021	Meeting Time	3:00-5:00 PM	Venue	Committee Room

IQAC meeting was held on November 18, 2021, at 3:00 PM in committee room. Following members were present.

Prof. Prakash Gopalan, Director, Chairman IQAC

Mr. Sanjay Sen, Representative of BoG

(Online)

Prof. Ajay Batish, Deputy Director & IQAC Coordinator

Prof Rafat Siddique, DoRSP

Prof. R S Kaler, DoFA & HEIED

Prof. Inderveer Channa, Dean of Student Affairs

Prof. Maninder Singh, Head, CSED

Prof. Prempal Bansal, Head, CED

Prof. Ravi Kiran, Head, SHSS

Prof T K Bera, Head MED

Prof. Puneet Sharma, Representative for Head, SPMS

Prof. Sanjay Sharma, Representative for Head, ECED

Dr. J S Saini, Representative for Dean of Academic Affairs

Mr. Ashwini Kumar Kapoor, Alumni

(Online)

Ms. Falguni Sharma, Student Representative

Ms. Aafreen Singh, Student Representative

The following could not attend the meeting and were granted leave of absence.

Dr. Gurbinder Singh, Registrar

Mr. Rajat Sikka, Academic Liaison Officer, TCS

Prof. Padmakumar Nair, Director, LMTSoM

#### Action taken report on the minutes of previous IQAC

All pending issues have been acted upon and completed.

A brief presentation on action taken report and other activities of IQAC was made by the IQAC coordinator. The report below summarizes the discussion points.

#### Academic working 2021:

The academic year 2020-21 has been severely impacted by the pandemic. All the academic activities were conducted online due to lockdown in various parts of country. However, the first semester of the academic year 2021-22 was conducted in hybrid mode in which 70-80% of the teaching and evaluation were conducted face to face. This includes a written test which was conducted with the weightage equivalent to End Semester Test in an offline mode. Remaining teaching and evaluations are being conducted in online mode.

#### Stimulating research, development, and consultation:

Thapar Institute offers world-class infrastructure and a sound knowledge base to carry out complex research projects. Research is a stated mission, and many are funded by government agencies and industry. Our research projects are not just for technological innovation but also for amplification of research results, transfer of technology and establishing technology driven businesses. Thapar Institute has several centres of excellence for students and researchers. Many respected and renowned Indian and international companies are associated with this learning centre for research and faculty exchange programs.

Cutting-edge research is at the heart of the university, which believes that original research must be the backbone of engineering education. Thaparians had 1116 published research papers in SCI Journals in 2020-21 and many sponsored research projects are currently ongoing in different disciplines. With research focused in niche areas of engineering and sciences, Thapar Institute of Engineering & Technology has over 9600 published research papers in peer-reviewed journals under its belt.

Total No. of SCI papers (2016-2021)	No. of Faculty members with at least 10 SCI papers (2016-2021)
4440	280

#### **Research Indicators**

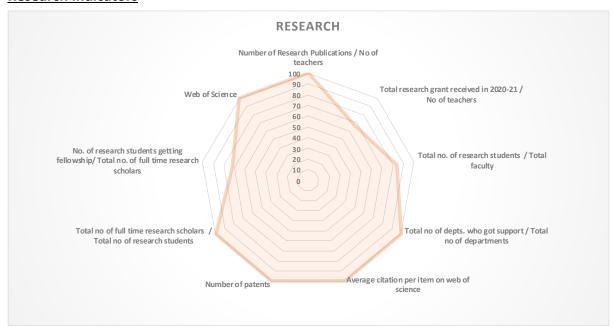


Figure 1: Research Performance of TIET

The University faculty have published 1116 Scopus publications in the last academic year out of which 903 were published in SCI journals of repute. The average citation for publications from institution has risen to 13.93 from last year's 12.03. The h-index of the institute has also been increased to 102. Overall, on average each faculty members have published at least 2 papers in Scopus/SCI journal meeting the expectation set in the last meeting.

## Analyze search results

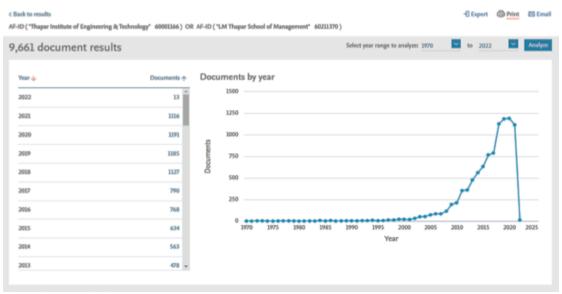


Figure 2: Publications by TIET Faculty

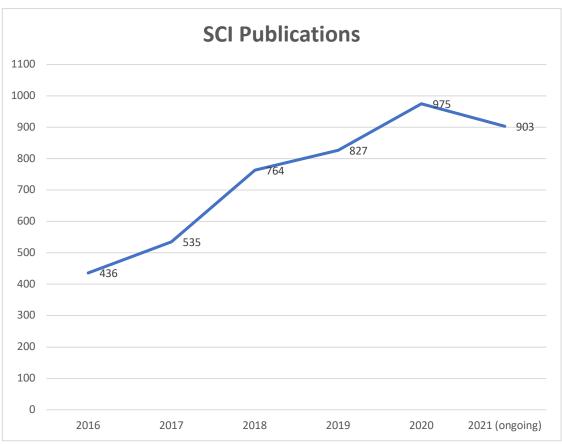


Figure 3: SCI Publications in last 5 years

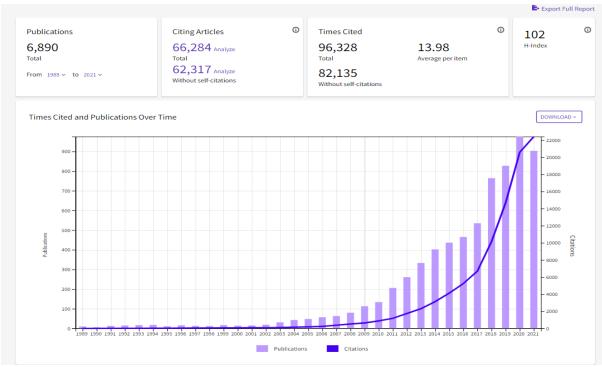


Figure 4: Citation and H index of TIET

University faculty members secured a total grant of ₹475.88 Lakhs from various funding agencies for cutting edge research in their domains. A total of 638 students have been funded by the institute/MHRD/other govt. funding agencies at various levels for contributing to ongoing research projects and their PhD programs in various departments/schools. Overall, the Institute has kept a benchmark for research grant of Rs. 2 lacs per eligible faculty per year. Based on 2020-21 years data an average grant of Rs. 1.31 lac per faculty member has been received, which is meeting 65% of the benchmark value.

Table 1: Funding sanctioned/received in 2020-21

Funding agency	Grant Sanctioned (INR LAKHS)	Grant Received (INR Lakhs)
AICTE	9.57	9.42
DST WOS-A	17.03	10.04
SERB	125.71	74.03
DST-FIST	92	40
DBT	60.39	38.28
DAE-NBHM	16.15	5.48
DASSAULT SYSTEMES FOUNDATION	15.75	15.75
RCED	10.08	3.18
INDSTL	5.56	5.59
DRDO	8.59	2.59
ICMR	42.44	42.44
BEO	5	5
DST-NSM	12.3	12.3
DST-DDP	55.31	36.99
INTEL	44	44



Figure 5: Sanctioned projects from funding agencies in 2020-21

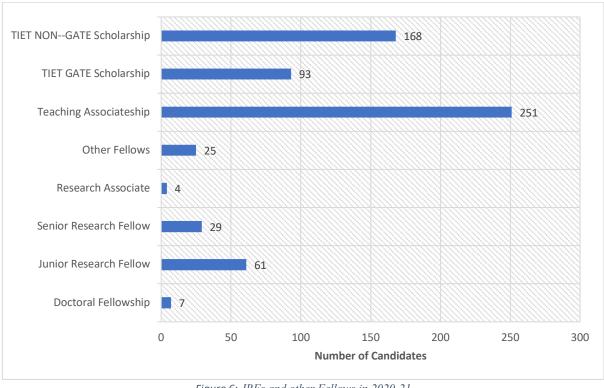


Figure 6: JRFs and other Fellows in 2020-21

A total of 92 students were awarded PhD degree in academic year 2020-21, whereas 790 ongoing PhD students doing their research in various departments/schools. The Institution has seen a remarkable increase in number of patents published during the last academic year 2020-21. A total of 64 patents were published, although many of these have been published without TIET affiliation. IQAC has advised all head of departments/schools to ensure that TIET is one of the applicant in every patent application.

Total

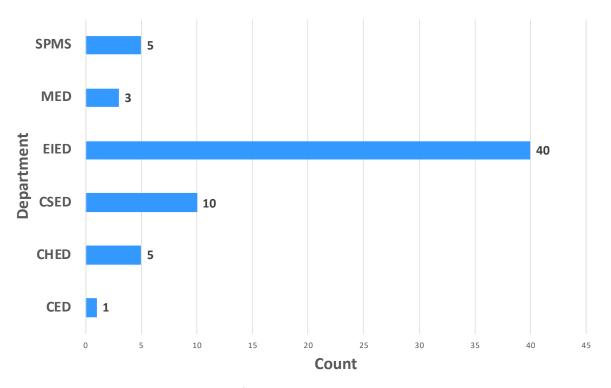


Figure 7: Department/School wise Patents published during 2020-21

An amount of ₹224 Lakhs has been generated through consultancy by various faculty members and academic units. The committee appreciated the efforts made by the institute faculty members for the consultancy work and has applauded the Civil Engineering department for securing consulting services for third party design, geotechnical, safeguards, road safety and work zone safety review for Himachal Pradesh Road upgradation project sponsored by World Bank. The consulting amount for this project is Rs. 6.75 crores.

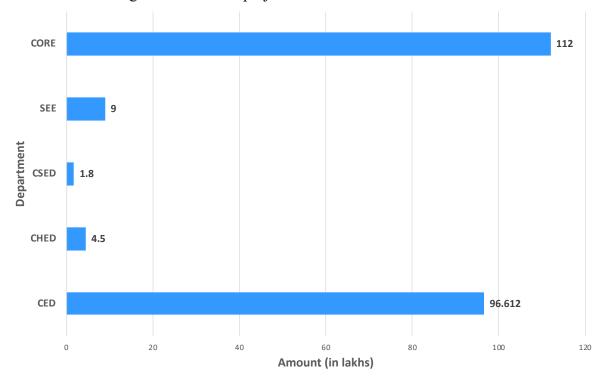
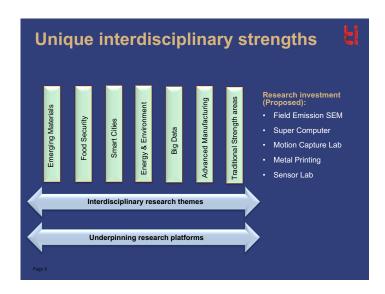


Figure 8: Consultancy during 2020-21

### **Going Forward**

TIET has experienced remarkable growth in research activity during the last 5 years, and growth is often the by-product of doing things better. Some initiatives cited above and many, many more help explain TIET's journey till date. Going forward the institution aims to make targeted investments to develop new interdisciplinary and inter-institutional collaborations to establish six centres of excellence (COE) across identified research themes. TIET is also undertaking multiple other initiatives to build research excellence focused at solving real world problems and providing students with experiential learning for better application and analytical skills.





TIET has already established three chairs to lead the Food Security, Emerging Materials and Advanced Manufacturing Centers during the last 20 months. The food security chair is led by Prof Yosi Shacham from Tel Aviv University and the Emerging Materials Chair

is led by Prof Roop Mahajan from Virginia Tech. The third chair was established recently with appointment of Prof Noam Eliaz from Tel Aviv University to lead the Advanced Manufacturing Centre. All the three Chairs are eminent professors with wide research experience in their fields. Two of these centers are already operational at Patiala and both Chair Professors have followed similar strategies in running their respective centers. As the 6 CoEs get established, it is expected that close to 200 academic members of TIET staff, 100 Postdoc or PhD students would be working in these centers during the next five years.

Some of other initiatives that will be taken to build research capability include:

- The institute will promote interdisciplinary research among faculty members by creating research groups and offering enhanced incentives for the same. TIET will also recruit eminent faculty members in the existing strong areas as well as the new schools at the institute, focused on undertaking research and providing suitable guidance. TIET will encourage its faculty to regularly collaborate and research areas concerning the society. The institute will support faculty in publishing their material in peer-reviewed journals.
- The institute will adopt the mentor model for developing individual research capabilities and improving research quality across levels.
- TIET will attract adjunct faculty from global institutes and the industry for conducting
  research in complementary areas. The institute will incentivize faculty to expand
  individual networks and undertake joint projects with collaborators from other
  geographies and countries as well.
- Over the next five years, the institute will build cutting-edge research infrastructure, invest in required equipment, and provided the needed facilities to conduct the research targeted for this period.
- The institute will also procure high-end application instruments to strengthen the present research facilities in phased manner. The institute will invest in cutting-edge research facilities as well.
- TIET will conduct an internal annual competition for research funding across identified areas – allowing participants to develop focused research plans and success indicators to seek a suitable quantum of funding

• TIET will also create an IPR center to facilitate and provide suitable guidance for patent filing and patent commercialization

## • Center for Excellence in Emerging Materials

Three thrust areas have been finalized under Center for excellence in Emerging Materials including

- > Coal derived graphene.
- ➤ Bio X;
- > Composites.

A total of 13 Junior research fellows and 1 post-doc fellow is working on various projects allocated under the center. Most of these projects have already procured equipment and consumables. A total of 20 large, sponsored projects have been submitted to various funding agencies under the center.

#### • Center for Excellence in Food Security

A total of six different projects have been allocated under the TIET-TAU Center of Excellence for Food Security

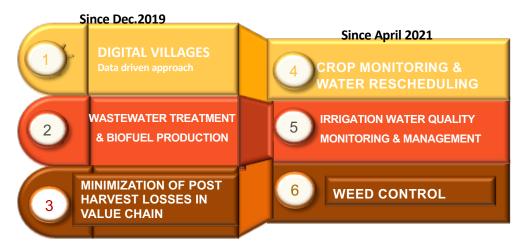


Figure 9: Projects at CoE Food Security

#### Center for Excellence in Data Sciences

Further, discussions are on for setting up a Center of Excellence in **Data Sciences led by** a **Chair Professor** from University of Queensland, Australia. An agreement has been made where TIET faculty from Computer Science and Engineering department can visit University of Queensland as **post docs**.

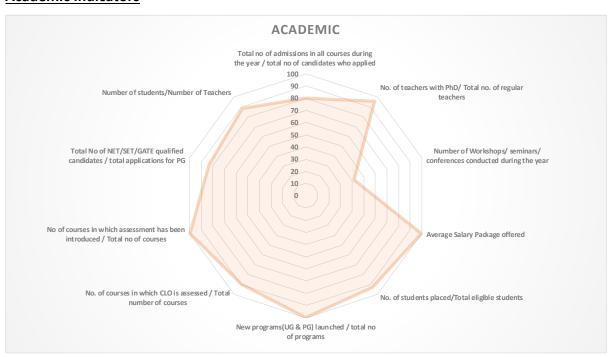


Figure 10: Thrust areas for CoE in Data Sciences

#### TIET Post-doctoral Program

TIET started a post-doctoral support program in 2017. Since then, around 26 faculty members have availed this facility. In 2020, 4 faculty members visited Trinity College Dublin, 3 at Tel-Aviv University and one at Virginia Tech University (VT). Their progress is being reviewed periodically. Few more post-doc opportunities at Virginia Tech and University of Queensland have been explored. University of Queensland and Tel-Aviv University has agreed to share 25% sponsorship cost to these post-docs.

#### **Academic Indicators**



#### Admissions 2020-21

The Institute received a total of 24000 applications for 2850 seats indicating the demand ratio as 1:8. The Institute has set a target of 1:10 for the demand ratio, which is around 80% achieved. The Institute has 95.7% teachers who are PhD qualified. The faculty members of the Institute have conducted 25 conferences/workshops/seminars during the year. 4 New Programs Launched in the academic year 2020-21. All UG programs have been transformed into outcome-based education, where every course learning outcome is measured throughout the year. We have received 312 applications from students who have qualified NET/SET/GATE for around 750 seats, which is below the expectation of at least 50% applications.

#### Placements 2020-21

In academic year 2020-21, 377 companies visited TIET for the recruitment of UG & PG students till date. Due to pandemic year, many core organizations will be visiting our institute in the last quarter of the year 2021 for the students those have already passed out in 2021. Of the students from BE/BTech branches who were eligible and had opted for campus placements 1119 were placed and having 1227 offers. In BTech Bio-Tech 10 out of 35, Civil 18 out of 48, Chemical 11 out of 25, Computer Science 564 out of 610, Electronics and Communication 146 out of 179, Electronics & Computers 146 out of 164, Electrical 64 out of 118, Electronics Instrumentation & Control 24 out of 36, Mechanical 111 out of 182, Mechatronics 16 out of 21 & Mechanical Production 9 out of 19 got placed through campus placement. The overall placement percentage of all eligible students of UG courses is around 80%. Apart from UG branches, 58 master students (MCA, ME, MTech, MSc, MA) also got placement through campus interviews, making it 21% overall in PG courses. Hence total numbers of offers received are 1285. Many organizations have extended the internship periods for the students due to pandemic and these students are likely to get offer in the coming times. The above data is updated till 30th Sep. 2021.

Graduating Recruiting **Students Placed** Year **Companies Total Offers** Single Offer Multiple Offers **Total Placed** 2016-17 268 860 169 1029 1213 2017-18 934 322 203 1135 1345 2018-19 332 1174 75 1249 1324 2019-20 \* 347 969 126 1095 1221 2020-21 \* 388 1089 118 1207 1325

Table 2: Placement records

Apart from regular visitors, organizations visited the campus for first time for campus interviews. The first timers are Gameskraft, Cloud Mentor, Docquity, Colgate-Palmolive (India) Limited ,Filo, McKinsey & Company, Mamaearth, Tata Power Limited, Hindustan Unilever, NTT DATA Corporation, Delhivery Pvt Ltd, Zibal Technologies Pvt. Ltd., Tata Technologies, Samsung SDS India, Barco Electronic Systems Pvt. Ltd., AB InBev, Convene India Private Limited, Strategic Research Insights, Indian Oil Corporation Limited, PharmEasy, Providence Global Innovation Center, HealtHEHR, Telecom Regulatory Authority of India, GEP

Worldwide, AuthBridge, AMD (Advanced Micro Devices, Inc.), Bain & Company, Indegene, Hashedin Technologies, Philips Innovation Centre, HUVIAiR Technologies Private Limited, Max Speciality Films Ltd.

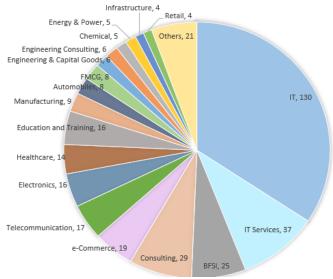


Figure 11: Sector wise organization footfall

#### **Economy Trends & Placement Challenges**

- Global pandemic & technical recession; however, the economy seems to be recovering.
- IT/CS/Software companies are driving placements (EdTech startups to large firms).
- Business uncertainties causing delayed hiring in Manufacturing, Construction & Chemical sectors.
- Core sector hiring (Auto, Infra & Textiles) is far lesser and still have their processes put
  on hold with companies presently uncomfortable in online mode of hiring; will wait
  for physical campus processes.
- Logistics/Transportation & Auto (Commercial Vehicles) expected to recover and drive demand as it picks up.
- Very confident of hiring activity picking up (hiring processes have only shifted by a few months and will come back strongly.

#### **CAPSL 2021**

a. New Directions Program (NDP): A new batch of new directions program (NDP) has started from 6th September 2021 for a week. The program runs for full semester till March 2022 and will continue for another 3-4 subsequent rounds of one week engagement of faculty members. There are 72 participants in the 6<sup>th</sup> batch of NDP, which has been divided into 4 groups. The faculty members will undergo 5 core modules, 5 Fellow optional (FO) and 3 CAPSL optional Modules during NDP.

Table 3: Modules of NDP 2021

Core Modules:	<u>FO Modules</u>	CAPSL optional Modules
Student Centric Learning	Peer Observation of teaching	<u>Creativity</u>

<u>Assessment</u>	Project based learning	Group work
<u>Curriculum</u>	Fostering self-regulated learning	<b>Evaluated teaching</b>
Reflection	Research integrated teaching	
Outcome based Approach	Learning and feedback skills of students through self and peer assessment	

- b. Advanced Program in Teaching and Learning 2021: The advanced program in teaching and learning (ADP) focuses on professional development and integrating teaching, learning in an online environment. The whole program is designed by Thapar Trained Academic Fellows with inputs from Trinity College, Dublin and TIET academicians. The program is research-informed and is practice-based. A total of 47 different faculty members have successfully completed this course. There are nine modules offered in the course spanning three months. The modules include:
  - i. Design of E-Content.
  - ii. Content Authoring tools.
  - iii. Modes and components of online assessment.
  - iv. Pedagogy and best practices of online teaching.
  - v. Enhancement of student motivation and online engagement.
  - vi. Student engagement.
  - vii. Approaches to conduct labs in an e-learning environment.
  - viii. Accreditation.
    - ix. Workshops on open and institutionally supported LMS.



IQAC of Thapar Institute of Engineering and Technology Patiala organized two days NAAC sponsored National workshop on "A Paradigm shift from Content based to Outcome based Education" during 26-27th August 2021. The workshop hosted various participants from 20 different states of India. The workshop was inaugurated by AICTE chairman Prof. Anil Sahasrabudhe.

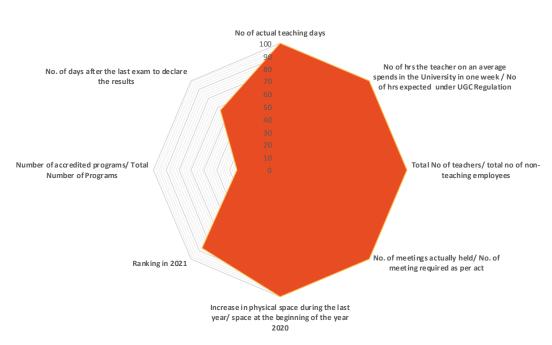
#### **Student Satisfaction Survey**

An annual student satisfaction survey has been conducted by the Institute over all the existing students. 2550 students participated in the survey. The survey measured

satisfaction of students related to academics, research, and governance. The survey results are available at https://drive.google.com/file/d/156EeFe6wrsS3BnQTSw7vL8UceiBXP2Jk/view?usp=sharing

#### **Governance Indicators**

#### **GOVERNANCE**



Dean of Academic affairs reported a total of 180 days of teaching during 2020-21. The Institute took an average of 25 days for publishing the result from last day of examination. Most of the UG programs are either NBA or have applied for renewal. Five UG programs have applied for ABET re-accreditation. At this point none of the PG program are accredited. IQAC advised all the heads of programs to apply for accreditation of eligible PG programs during next two years.

#### **Rankings and Accreditations**



- \* Ranked in 501-600 bracket worldwide
- Ranked 5<sup>th</sup> amongst 71 Indian Institutions ranked **Subject Rankings**

#### **Engineering:**

- 401-500 bracket worldwide (last year 501-600)
- Joint 3rd in India (Last year joint 12th in India)

#### **Computer Science:**

• 301-400 bracket worldwide (last year 251-300)

#### **Physical Sciences:**

- 401-500 bracket worldwide
- Worldwide Ranked in 251-260 bracket worldwide (last year in 261-270 bracket)

Prof. Prakash Gopalan Chairperson, IQAC Prof. Ajay Batish Coordinator, IQAC



- India Ranked 32nd in India along with NIT Trichi
- In Private Institutions 4<sup>th</sup> in India (after BITS, VIT & Manipal)

## **NIRF Ranking**



Figure 12: Section-wise scores in NIRF Ranking 2021

### **Key Action Points**

#### Research

Action Point	Responsibility	Target Date
It was observed that the number of Scopus publications in	DoFA	Februrary
the last few years have declined on the basis of number of		2022
papers per faculty. Similarly, the number of Book chapters		
/ Scopus conference publications by faculty members are		
also not growing. The members of IQAC advised Dean		
Faculty affairs to suggest appropriate ways to incentivize		
all the research metrics such as publications, projects,		
patents etc. DoFA to present during the next meeting.		
IQAC noted with concern, some patents published during	DoRSP	With
the year do not show TIET as first party for registration of		immediate effect
patents. The committee advised that every patent		enect

application should be filed as TIET patent policy Version		
2.0(Section 3.6, 3.7 & 3.8). The policy is available at		
https://www.thapar.edu/upload/files/TIET-		
IPR%20Policy%20Ver.2%20-%20Aug%202021.pdf.		
Adhering to this policy is a must.		
Increase the number of stipendiary students for research.	Deputy	February
To develop a proposal for rationalizing the fee applicable	Director	2022
for PhD students inline with peer institutions. IQAC		
coordinator to present a proposal in the next meeting.		
Academics		
The IQAC members advised that the departments are not	Head of	With
organizing enough conferences/workshop courses/ short-	Departments/ Schools	immediate effect.
term courses during the year. It was agreed at least four	36110013	circu.
conferences/workshops/short-term courses/external		
training programs per academic unit. The members		
advised to form a committed to formulate policies for		
increasing the number of conferences.		
The students' representatives pointed out that the 1st and	Head of	January
2 <sup>nd</sup> year students are not getting any carrier guidance in	Academic Units / CTD	2022 and to be
their programs. The committee advised that all the Heard	Offics / CTD	continued
of Programs should hold regular meetings with the		every
students to guide them about the carrier in respective		semester
programs. The Center for Training and Development		
should also make carrier guidance programs for 1st and 2nd		
years students.		
The committee members raised concerns about low salary	Head CILP	February
packages for PG students. The core sector placement has		2022
also been affected due to pandemic. It was advised that		
Head CILP to investigate and submit his findings.		
Governance	1	
It was advised that all eligible UG and PG programs should	Heads of Academic	Over next two years
also apply for NBA accreditation as soon as possible.	Units	two years

The results must be declared within 15 days from last day	DoAA	From
of examination.		Current
or examination.		semester
The committee advised to form a task force for	DoFA	February
improvement of Institute perception score.		2022

The committee also approved the following targets in the three categories of Research, Academics and Governance academic year 2021-22.

## **Research Indicators**

S No	Indicators	Method of Computation	Benchmark value
a)	No of SCI research publications per teacher per year	Number of Research Publications / No of teachers	3
b)	Research grant received per eligible teacher per year	Total research grant received in 2020-21 / No of eligible teachers	2.0 lac per eligible teacher per year
c)	Research students per teacher per year	Total no. of research students / Total faculty	2.5 per year per teacher
e)	Percentage of Departments getting departmental support from various agencies like UGC, SAP, DST, COSIST etc.	Total no of depts. who got support / Total no of departments	20%
g)	Citation Index	Average citation per item on web of science	20
h)	Number of Patents published or awarded	Number of patents	60
i)	Percentage of full time research scholars	Total no of full time research scholars / Total no of research students	80%
j)	Percentage of research students getting research fellowship	No. of research students getting fellowship/ Total no. of full time research scholars	80%
k)	University H Index	Web of Science	110

## **Academic Indicators**

S No	Indicators	Method of Computation	Benchmark value

a)	Demand Indicator	Total no of admissions in all	1:10
		courses during the year / total	
		no of candidates who applied	
b)	Percentage of teachers	No. of teachers with PhD/ Total	100%
	having Ph.D.	no. of regular teachers	
c)	Average no of activities like	Number of Workshops/	60 / year
	Workshops, Seminars,	seminars/ conferences	
	Symposia, Conference	conducted during the year	
	conducted / year		
d)	Average Salary Package	Average Salary Package	Rs. 12 Lacs CTC
	offered to UG students	offered	
e)	UG Placements	No. of students placed/Total	90%
	PG Placements	eligible student	60%
f)	New programs introduced in	New programs (UG & PG)	5%
	last year	launched / total no of programs	
g)	Assessment of Course	No. of courses in which CLO is	100%
	learning Outcomes	assessed / Total number of	
		courses	
i)	Assessment of teachers by	No of courses in which	100%
	students	assessment has been introduced	
		/ Total no of courses	
k)	Number of	Total No of NET/SET/GATE	50%
	NET/SET/GATE qualified	qualified candidates / total	
	students	applications for PG	
1)	Faculty STR	Number of students/Number of	1:15
		Teachers	

#### **Governance Indicators**

S No	Indicators	Method of Computation	Benchmark value
a)	Actual teaching days per year	No of actual teaching days	180
b)	Minimum workload of teachers	No of hrs the teacher on an average spends in the University in one week / No of hrs expected under UGC Regulation	40 hrs
c)	Teaching – Non teaching ratio	Total No of teachers/ total no of non-teaching employees	1:1.25
d)	Regular meeting of Institute bodies like council, senate, BOG, BOS, etc	No. of meetings actually held/ No. of meeting required as per act	100%
e)	Percentage increase in physical infrastructure	Increase in physical space during the last year/ space at the beginning of the year 2020	10%
f)	NIRF Ranking	Ranking in 2021	Top 20
g)	NBA or ABET accreditation	Number of accredited programs/ Total Number of Programs	70%
h)	Final result declaration	No. of days after the last exam to declare the results	15 days

## Targets 2025

#### **Excellence in Teaching & learning**

- Train and certify all faculty in academic practices
- Continually improve the learning outcome score (minimum 3.5 on a scale of 5)
- All undergraduates in engineering will participate in one or more of the following: competitive project teams, internship, research project, outreach
- Curricula continuously accredited by NAAC, NBA or ABET
- Increase student satisfaction with academic and mentor support for developing their graduate attributes and employability (Current campus employability 90%)

#### **Excellence in Research**

- 2500 peer reviewed publications per year in Scopus by 2025; 2000 in web of science every year by 2025
- Establish six research centres in the next five years (major defined as 10+ faculty, Rs 5 crore research funding and >20 funded graduate students)
- Increase the average number of PhD students per member of academic staff to at least 2.5 students.

- Increase our score for the citations-based measure on web of science at 15 citations per paper.
- To cross 20cr sponsored project funding by 2025.

#### **Outstanding student experience**

- Recruit at least 80% of our UG students from the top 20% All India JEE scores or 10+2 scores
- Increase the student numbers to 15000 by 2020 (current: 10000)
- Invite at least 700 employers on campus for student recruitment
- Improve the student placement from campus to 100% of all eligible students
- Organize career fairs and industry tech talks
- Hire a branding partner and use social media tools for brand enhancement

## **Human Resource Development**

- Developing recruiting best practices to attract talent.
- Improve the teacher-student ratio to 1:15.
- One successful high-impact senior faculty recruitment per year.
- Increase our number of international applications for academic posts.

#### World class infrastructure

- Construct the 2<sup>nd</sup> phase of academic buildings and new student residences by 2024.
- Modernize the existing academic buildings by 2025.
- Upgrade and modernize the remaining labs by 2025.

#### Partnering for impact

- 2<sup>nd</sup> phase of the contemporization program for 2021-2025 with major focus of research.
- Improve number of our research publications which are collaboratively co-authored with other institutions.
- Increase our number of students on joint programmes to 100.
- Develop more joint programs with partners abroad.

#### Innovative & entrepreneurial

- 20 start-up companies by 2025 functional from our venture lab.
- 10-15 invited speakers on entrepreneurship every year.
- Two venture lab weekend activities every year.

The meeting ended with vote of thanks to the chair and a cup of tea.