



SELF STUDY REPORT

FOR

2nd CYCLE OF ACCREDITATION

PANDIT DEENDAYAL ENERGY UNIVERSITY

KNOWLEDGE CORRIDOR, RAISAN VILLAGE

382426

<https://www.pdpu.ac.in>

Submitted To

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

BANGALORE

April 2022

1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

History suggests that the onus of creating world-class educational institutions is indeed a humongous task, and it takes years of sincere and hard work for the efforts to fructify. With a vision to be an internationally renowned and respected institution imparting excellent education and training based upon the foundation of futuristic research and innovations, the Pandit Deendayal Energy University (formerly named as Pandit Deendayal Petroleum University-PDPU) has been established through Gujarat State Legislature Act enacted on 4th April 2007.

The University embarked on its journey with a *focus on the energy domain* during the initial years. PDPU after that, keeping its energy domain academic and research strengths intact, *has vistas in technology and liberal education* areas and has grown into a preeminent institution with noteworthy national and international visibility. PDPU today offers academic and research programs to address the need for trained human resources in the domains of Science, Technology, Engineering, Management (STEM) and Humanities.

The Board of Governors, of the University, presided over by Dr Mukesh Ambani, CMD-Reliance Industries Limited, comprises of the leaders from Industry, government and academia which provides strategic leadership to PDPU. In the 8th Convocation of the University, Hon'ble Prime Minister Shri Narendra Modi endorsed the name change of the University to **Pandit Deendayal Energy University (PDEU)** considering the progress of the University in various energy domains besides the Petroleum sector. Thus, the month of January 2021 heralds the transformation of PDPU to PDEU.

The gross Mission is to ensure Transforming education, Translational research, and Transcending quality in the era of digital transformation, Education 4.0, and Industry 4.0.

Ranked as the No.1 Private University in Gujarat by GSIRF ranking and recognized with NIRF ranking amongst Top 100 institutions, PDEU is proud of its NAAC 'A' Grade Accreditation with CGPA 3.39/4.0 in the year 2016 and for being the only private University in Gujarat to get the graded autonomy status by University Grants Commission (UGC) in 2018. The university has been awarded 'Centre of Excellence Status' by the Government of Gujarat.

The University has dedicated itself to remain **Locally Engaged, Nationally Important and Globally Competent to provide "Energy for All" and to prepare "Youth for Tomorrow"**.

Vision

To emerge as a world-class Institution of Excellence in Energy education, Research and Innovation which will prepare and sensitize the youth and ultimately the society for radical yet sustainable societal transformation.

True to the vision set by the visionaries and stakeholders of the university, the university has distinguished itself in Energy Education, Research, Innovation, and Social entrepreneurship which resulted in the Government of Gujarat recognizing PDEU as a "Center of Excellence" in the recently concluded Vibrant

Gujarat Summit in the month of January 2022. Further as per the State Legislature Resolution, the name change of the university from PDPU to PDEU has enlarged the vision of our University in focusing on Energy challenges pertaining to both non-renewable and renewable resources.

As a true signature to our enlarged institutional vision, we are intensifying energy education by establishing manufacturing capabilities/ infrastructure on the campus to train energy soldiers for the nation which includes pioneering skill-developing initiatives such as a production line for 50 MW Solar PV panel and high-end Laser metal 3D printing facility to the tune of INR 15 Crores with the benevolent support of the Government of Gujarat. These manufacturing skill sets that are currently underway are the *pioneering facilities of this kind, amongst the higher education institutes.*

Our vision also encompasses a **triple helix model, integrating Academia-Industry-Government** in launching concrete “Make In India” and Atmanirbhar Bharat initiatives. The institution desires to set our focus on the implementation of National Educational Policy 2020 in letter and spirit and to become a vibrant Multidisciplinary Educational and Research University (MERU Campus).

The *university's strategic five-year plan(2021-25)* emphasizes the vision and mission of the university which aims to be a student-centric institution, with excellence in curriculum development, create innovative research-oriented faculty resources, and enhance the capability of the university by commencing new academic programmes. The university also envisions serving and catering to different stakeholders by becoming nationally and globally relevant. To this end, we subscribe to the *Study in Gujarat* and *Study in India Program*.

Mission

PDEU is guided by a three-fold Mission:

- **Undertake a unique obligation for Education in Energy, Engineering, Management, and Liberal Arts with special responsibilities in domain-specific aspects of Energy & Infrastructure.**
- **Seek to nurture students of extraordinary motivation and ability, and prepare them for lifelong learning and leadership in an increasingly knowledge-driven world.**
- **Envisage to establish institutes of excellence in education, competitive edge in research, and real-time relevance with futuristic thrusts in offering programmes and undertaking of activities and projects.**

The Mission of PDEU embodies an effort to Educate, nurture the students in Energy education and to establish world-class “Centers of Excellence”. The University has invested over ~ INR 200 Crore funding in R&D and Centre of Excellence's Projects and currently 60 government and private sponsored ongoing projects are pursued. The University stands out with the exceptional Centres of Excellence including Siemens Automotive Centre of Excellence (20 Crores), Centre for Biofuel and Bioenergy Studies (5 Crores), Solar Research and Development Centre (Rs. 44 Crores), Centre of Excellence in Geothermal Energy (Rs. 15 crores), Drilling, Cementing and Stimulation Centre (10 Crores) and Maruti Suzuki International Automobile Centre of Excellence (100 Crores).

The institution is currently engaged in setting up new Centres of Excellence in Manufacturing, Energy satellite and next-generation computing. The efforts are currently underway. The university is currently establishing new centres of excellence in the strategic five-year plan for the year 2021 to 2025.

To nurture the students with extraordinary motivation and ability for lifelong learning, the University has revamped the entire course curriculum with Industry 4.0 demands in the form of Curriculum 2020.

The University has included Mixed/Augmented/Virtual reality, Industry IoT, Cyber-Physical systems, AI, Blockchain technology, AM, Smart energy storage systems, automotive manufacturing, Electric Vehicles, Biomedical Engineering, Nanotechnology and Machine learning in the syllabus.

PDEU in response to the UN Call for Sustainable Development Goals for Clean Water is working on designing, developing, and demonstrating high-recovery, low-cost water treatment systems for saline groundwater with the support of the European Union under Horizon 2020. PDEU is focused on societal impact through its knowledge impartation.

1.2 Strength, Weakness, Opportunity and Challenges(SWOC)

Institutional Strength

- **PDEU is an Industry 4.0 Campus:** All the nine verticals of I -4.0 are established for Industry ready, finishing school concept.
- PDEU set visionary practices in line with NEP 2020 well before it was announced as a result it has largely facilitated the **Trans-disciplinary, Translational and Transcending quality** initiatives in its curriculum.
- PDEU is the first University to plough deep into the entire spectrum of Energy harvesting, resulting in the name change from Petroleum to Energy University.
- Robust Faculty centric/ and Student-centric engaging and ensuring initiatives have made PDEU faculty and students nationally important.
- Over **INR 240 Crore spent only on Centres of excellence** for Skill based training and experiential learning.
- Locally engaged, nationally important and globally competitive training of students has led students to higher studies.
- PDEU students' have demonstrated their prowess by securing **All India Rank 1st Rank in GATE 2022, and** securing the top 4 out of 10 GATE ranking, which heralds National competency.
- Intensive engagement with policymakers and industry.

Institutional Weakness

- Due to demand and since 50% of the sanctioned intake in student strength is confined to Gujarat (ACPC regulation), PAN India student representation theoretically cannot exceed more than 30% for any yearly admission. (Student-Diversity is constrained by state-level admission regulations).
- Although the H-Index of the University exceeds 50, H-index 53 as on date, which is commensurate to University with Potential for Excellence status, University does not have 12B status of UGC, being a private university, as a result, several funding from Government agencies are limited.
- Hostel accommodation is limited to only 40% of the student population, as a result, out-of-turn measures for campus activities such as extra-curricular activities are limited.
- COVID has taken a toll on students training on experimental courses during the assessment period and hence fast pace training had to be implemented for the limited scope of learning.
- Although the Female students ratio is above 50% in Liberal studies, the same presence is not reflected

in engineering courses, also due to Admission being based on JEE rank.

Institutional Opportunity

With a vision by the Government of Gujarat to build a knowledge corridor, PDEU is surrounded by other educational institutes within the vicinity of 1 Km radii which provides scope for inter-disciplinary and academic bank of credits.

- With a distinction offered by the Government of Gujarat to consider PDEU as a Center of Excellence (in Feb 2022), there is now more freedom to cater to PAN India stakeholders for training in Energy Transition, a mandate dear to our Central and State governments.
- With 88% of faculty with PhD and over 70% from HEI, it sets a perfect rhythm for the faculty to raise the standards to institutions like IITs.
- With a robust Pay scale as per MHRD guidelines (likened to IIT Salary), we have scope to attract faculty with Global competence for imparting Knowledge to our stakeholders.
- Being preferred as the most sought after institution for the “Study in India program” conducted by the Government of India, there is more scope to increase international students’ strength and create a Global village with a representation of 43 countries.
- University has filed 200+ patents and is granted. University is presently pursuing the translation of these patents to licensed technologies.

Institutional Challenge

- Half of the assessment period (2017-2021) was derailed by the COVID pandemic and the closure of campus activities, hence to match desirable ranking parameters remains a challenge.
- While we have restored our campus activities lately (after October 2021), to recourse our action for NEP implementation has posed more challenges: Faculty time to invest with students is limited.
- During the assessment period (2017-2021) the entire teaching-learning process and resources have changed to a larger extent, which in turn brings a change in classroom dynamics. This is a greater challenge for the teaching community.
- During the pandemic, many faculty members have migrated to places close to their hometowns and weaning them out of this orientation and retention has become a new problem.
- With great demand for digital transformation, the recruiter's focus has changed more towards digital technology than the core technologies. University is henceforth striving to meet these challenges.

1.3 CRITERIA WISE SUMMARY

Curricular Aspects

A very well concerted outcome-based education (OBE) and choice-based education (CBS) form the basis of our curriculum design and development.

- Over 1250 courses are oriented towards Industry 4.0, Business 4.0, Logistics 4.0, and Education 4.0 which ensures 21 UG and 29 PG programs in STEM & Humanities with the latest course revision. Department Faculty, BoS, AC, Industry Experts (30%), Recruiters Alumni (15%) are involved in

Curriculum Development.

- Industry Collaboration with 175 Industry Organizations & 3 international university courses offered in collaboration with PDEU for students in USA and Australia ensures Industry-Academia connection.
- A licensed version of EdeX, Coursera, and NPTEL / SWAYAM platforms offered to students has enabled online course credit transfer/appropriation as per NEP policy.
- 22000 certificated courses through Coursera availed by 3000+ students.
- Industry readiness is assured by incorporating 31% of the credits for skill development goals.
- All Courses are mapped for COs –POs keeping in view NEP 2020. Bloom Taxonomy level 4- 6 reflected in examination & evaluation.
- Students, Lab tutors/technicians/ Faculty tutors and instructors practice CO-PO mapping in teaching and learning making the learning outcomes more enriching.
- More than 80% of the courses are revised and newly introduced as curriculum in the year 2020.
- A mandatory 2+2 Credit theory-Practical course on Industry 4.0 sets a new paradigm shift in the mindset of the students to think with an interdisciplinary approach and to find complementary areas for working together to solve complex engineering problems.
- Rural Internship / Urban Internship/ Civic & Social Service Internship (3 credit course, 120 hours) is mandatory for all students of all UG programmes in their first year of study.
- Industry Internship is mandatory (end of IV semester) for all the students in the Faculty of Engineering & Technology.
- All the courses offered in all schools have an edge either on Employability, Skill development, or Entrepreneurship to provide holistic education and to become accountable to society.

Teaching-learning and Evaluation

Well defined course objectives, course outcomes mapped with Program outcomes outline orchestrated teaching-learning process with adequate teaching-learning resources. Assessment is based on CO and PO mapping.

The teaching-learning process includes:

- The outcome-based education system is adopted and implemented in all 50 programmes (UG &PG), evident also from NBA accreditation already rendered to two programmes.
- Choice-based credit system (CBCS) is exercised from the first year onwards.
- The curriculum for various programmes is designed in line with NEP 2020.
- Over 1200 Value added courses/remedial courses/alumni connect enriches the learning process.

Fast Learners availed:

- E-learning/MOOC courses successfully completed by students in NPTEL, Edex, Coursera
- 1000+ industry collaborated comprehensive projects (CP) equivalent to Capstone Projects.
- Advance Learners were encouraged for Student Research Projects - 418 students - **INR 3.43 Cr invested.**
- 12 IPR from students in collaboration with faculties.
- 1500 Participated in Hackathon(s) leading to innovation, product development, IPR, and start-up activities.

Slow learners availed:

- 300+ diploma to degree students admitted to Semester 3; additional 65 Hours teaching offered.
- Mentoring to do Student research projects.
- Mentoring by Faculty through tutorial sessions.
- Special drive to encourage them to participate in 32 students club activities.
- Flipped classroom activities to enhance the learning process.

Employability/Industry connect:

- 300 international students from 34 countries have benefited from communication skills for 45 Hours session.
- 10% of the course are taught by Industry Faculty.
- 1 Credit course on Sports is optional for FOET (UG) and 3 credit core course for FOLS (UG) students.
- 723 students have gone through the soft and hard skill mapping.

Globalization

- 740 Students availed International exposure program and 30 + students availed the semester exchange program.
- 900 students participated in the global platform availing travel grant for attending workshops, conferences, and internships.

The evaluation process includes:

- 60/40 assessment level for internal/end semester.
- During pandemic End Semester Exam platform –PEXA (Proctored Based) Access to evaluated answer books to students.
- The Course outcome (CO) determines the level of attainment of course outcomes.

Feedback:

- Robust Feedback system to get inputs from students, industry partners, and employers to constantly revise and fine-tune the syllabus.

Research, Innovations and Extension

The Office of the Dean - Research and Development (DoRD) offers support from the initial stages of drafting project proposals to grant management, publication and the transfer of technology in terms of patent and prototype. DoRD provides internally funded grants such as Faculty seed support, initiation grant, matching grant, students research project grant, and start-up mentoring.

Research resource mobilization

- **Centre of Excellence in PDEU** worth INR 243 Crores: 3 Centers of Excellence were established in the last five years, worth INR 120 Crore.
- **Industry funding** - Corpus is created through Industry funding.

1. Shell chair worth 1.1 Million USD, INR 7.5 crores. Suzlon Chair worth INR 1.05 Crores.

2. Reliance foundation up to INR 85.5 Crores.
3. British Petroleum worth INR 3 Crores sanctioned for women in Technology initiatives.

- **Institute has received 61 funded projects** INR. 20.31 Crore.
- **Consultancy:** INR 6.34 crore worth of Consultancy done in the last 5 years
- **Project seed funding of**

1. INR 3.43 Crore for 418 students and 107 faculty members benefitted from the same.
2. INR 1.6 Crore to Research Scholars in the last five years
3. Cumulative Professional Development Allowance (CPDA) up to 3 Lakhs /per faculty/ three years for attending conferences/paper presentation/professional body membership/ conference registration fee.

- **Innovation and Incubation cell:**

1. 120 start-up incubated till date, 70 IPR filed.
2. INR. 40 Crore sale for start-up, INR 36 Crore invested.
3. 18000 students sensitized by IIC.
4. All the departments showcase research projects in the research review symposium.

- **Patents filed and Granted:** 202 Patents granted in the last five years (**163 Design patents; 11 process patents; 8 Product patents and 20 Copyrights**). **INR 1.35 Crore** invested by University to bring patent culture.

- **Research Publications:** In the last five years 2694 papers were published (without UGC care journals)

1. Scopus Publications: 1633 with 11558 citations.
2. Web of Science Publications: 1262 with 8100 citations.
3. Bibliometrics: 8.86
4. H index in Scopus-52
5. H Index in WoS- 50

- **Extension activities:** 25 Community projects done in the last five years. 521 students underwent Rural internships to sensitize students to social issues. 404 students engaged in urban governance issues for 90 days. 16 projects funded by GOG and corporate. 41 extension and outreach programs conducted in the last five years.

Infrastructure and Learning Resources

PDEU has established state-of-the-art infrastructure through the benevolent funding of the Parent organization GERMI and the Government of Gujarat. Core to the Infrastructural elegance is the green campus emphasis, energy harvesting, and low carbon factor considerations. Therefore each structure built has been well planned to complement international standards.

- Total 88 classrooms all with ICT facilities- this includes 04 lecture theatres (120 to 240-sitting capacity), 08 lecture halls (120 to 240-siting capacity). 89 State-of-the-art Academic Laboratory facilities, (Technical and Media studio), 32 Research laboratory facilities like Welding Research, BioFuel & BioEnergy Studies, Product Design and Simulation, Material & Fabrication, SEM/EDX, Electrochemical, XRD Laboratory etc.

- 08 Centres of Excellence: INR 243 Crores invested in Centre for Solar Research & Development, Siemens Center of Excellence, Drilling, Cementing and Stimulation, Center for Excellence in Geothermal Energy, Center for Bio-fuels and Bio-energy, Maruti Suzuki International Automobile Center for Excellence.
- Translational Research Center (**TREC**) building(80000 sq.ft.) built at the cost of INR 40 Crores dedicated for grooming Industry 4.0 technologies includes next-generation computing including Mixed reality and advanced centre for 3D printing.
- Innovation and Incubation Center with the buildup of 20,000 Sq.Ft comprising of prototype building and pilot testing, co-working space, classrooms, computer lab and multipurpose meeting space.
- Library: 03 virtually connected, fully automated and air-conditioned libraries (~10,000 sq.ft) with 175 seating capacity, 03 Reading Rooms: (200+ sitting capacity), 35,901 book titles, 58041 volumes, e-Books: 1,13,380, Title to volume ratio 1:1.62, Digital Library with 30 computers, Photocopy & Scanning facility, 98 PhD theses and 389 PG Dissertations, 4427 educational CD/DVD, Subtraction of Scopus and Web of Science database (18,000+ Journals, 1.3 billion cited references).
- Maintenance Expenditure: INR 1419.17 Lakhs rupees spent on maintenance of the infrastructure. CCTV surveillance system with 458 cameras, Daily cleaning of campus facilities: 130 housekeeping staff; Sewage Treatment Plant: 02 Nos. (300 KLD each), Rain-Water Harvesting: 12 percolation wells (20 KL/Hr each). Minimum use, maximum reuse, and safe disposal of plastic waste. Use of effective and safe cleaning products in restrooms, cafeterias, and food preparation spaces.

Student Support and Progression

Student-centric policies meant to empower students as energy soldiers for the nation shows several distinct progression. PDEU is proud to place on record that ALL INDIA RANK (AIR) first rank and the 4 out of the top 10 ranks in GATE 2022 were scored by the students of PDEU.

- **Scholarship from government scheme:** 1732 students, INR 15.33 Crore; Scholarship from institution's schemes: 451 students, INR 4.8 Crore; Teaching and Research Assistantship: 372 students, INR 45.29 Lakh;
- **Career Development Cell** for training and placement of the students. AMCAT Assessment Test for Placement Preparedness: 3275 students; GATE Coaching: 280 students; Workshop on Civil Service Exam: 218 students; Workshops/Seminar on career counselling: 63 (32,439 students benefited); > 400 students trained for competitive exams through Centre of Continuing Education.; 32 Programs on Soft skills, 1326 students participated in last 5 years;
- More than 1500 students from FOLS & FOET have enrolled for 3 credit; elective of soft skills; 22 Programs of Language and communication skills, 2286 students participated; 26 Programs on Life skills, 1317 students participated; 184 Programs on Awareness of trends in technology; 8031 students participated.
- **Student Excellence:** 337 student awards and conference publications/participations
- **GATE Results for the year 2022 :** Mr. Shreenath Jani- an M.Tech student has topped the first GATE AIR rank and 4 out of the top 10 GATE rankers are from PDEU. 297 students cleared competitive exams like GATE, GRE, IELTS, TOEFL, NSE(140) and NET / SLET between 2017-20
- **Placement:** SPM has recorded 99% placement consecutively for the last three years with the highest package 21.2 Lakhs p.a. The FoET have recorded an average of 88% placement.
- **Student participation:** National and International level awards/medals (Sports and cultural): 27 (2016-20). State-level awards/medals (Sports and cultural): 07 (2016-20) ; Awards/medals (Sports and cultural) Overall: 158; 796 Extracurricular activities through the Student Clubs (23) and Professional

Chapters (18) are administered and run by students.; Regular meetings with student representatives to obtain feedback; Student as members of Planning and Monitoring committee, IQAC, BoS, Women Cell, Anti Ragging Committee, Hostel, Cafeteria, sports.

Governance, Leadership and Management

The Board of Governors (BOG) Chaired by Dr. Mukesh Ambani, the Finance Committee (FC) and the Academic Council offer its inputs on all broad areas of development and internal quality enhancement. The leadership of the university identifies the needs at the departmental, school, and university levels to emerge as a global level/reputed institution. The Board of Governors is ably assisted by the **Standing Committee (Chairman: Dr Hasmukh Adhia IAS. Retd.)** to oversee, guide, and support the university in policy implementation. All statutory bodies have the autonomy to implement developmental initiatives in the line of vision and mission of the university. The leadership monitors the entire growth model to train efficient energy soldiers and loyal and accountable citizens of our nation.

- **Ensuring the five-year strategic plan** of the university uploaded on the University website emphasizes the vision and mission of the university guide for long-term sustainable improvement in quality. It aims to be a student-centric institution, with excellence in curriculum development, create innovative research-oriented faculty resources, and enhance the capability of the university by commencing new academic programmes.
 - **Empowering Resource mechanisms:** The University has a transparent and meritocratic appraisal system for both, the faculties as well as the staff. Each year at the beginning of the appraisal period, the goal sheets are finalized after an exhaustive exercise, which becomes the basis for the appraisal framework at the end of the appraisal period. 7th Pay Structure is diligently implemented for the regular employees of the University.
 - **Enriching Resource Mobilization:** PDEU being a self-financed university, follows financial prudence based on transparency, ethics, and integrity and has adopted best practices from both public universities and corporate governance under the framework of PDPU Act, 2007.
1. Corpus Funds: GERMI as a promoter for the university made the initial capital expenditure and provided the initial capital. Reliance Foundation has committed to contribute over a period of ten years through GERMI for PDPU, as an endowment fund that will go towards further strengthening PDEU and enable it in taking on additional activities.
 2. Scholarship Funds (INR 25 Crores): The University has presidential merit-based and merit cum means scholarships among the students. The University is mobilizing the resources also through Management Development Programmes, Consulting and Testing Services.

Institutional Values and Best Practices

Driving Innovation and cultivating excellence have been the hallmark of PDEUs' student-centric and faculty-centric initiatives. Innovation in the teaching-learning process and teaching-learning resources have been the markers of ever-changing pedagogical challenges.

1. **Innovation in teaching-learning resources:** To keep the stakeholders abreast with Industry demands and to cultivate excellence, a **Faculty research review symposium** is organized for the entire faculty. A half-day review symposium is held to let the faculty showcase any of their innovation in engineering,

science, humanities and management concepts that are of societal impact, and the outcome of their work and its impact on society is evaluated and suitably rewarded. This brought together, nearly 500 students faculty and research scholars together. In the last year, twice the faculty have presented their research findings. This has resulted in nearly 450 posters. The outcome is a highly spirited response from the faculty and students to take the Research publishable findings to IPR activity and from there to either contact NGOs or industries for societal impact. *This new pedagogical approach helps to bring **transformational education to translational research**. As a guideline to this synergy, metrics are defined in the form of a **Technology readiness level (TRL)** scale, 1-10 is specified. The attainability of TRL level 8-10 is kept as the target for every faculty and student in their lifelong learning cycle.*

2. **Innovation in the teaching-learning process:** To bring down the gap between the teachers and students in the learning process, three major initiatives are exercised.

- Hackathon and Innovation (Teachers and Faculty Partnership)
- Student research projects (SRP) with Seed funding (students with Faculty mentors). Student-Faculty Start-Ups- Joint partnership.
- It is gratifying to note that over 1800 students have participated in more than 3 Hackathon conducted on specific Themes such as Covid & Energy Storage. 30 best innovative ideas have been short-listed and over 15 patents have been filed so far. More than 5 faculty entrepreneurs have been enlisted as Startups in PDPU-IIC in the last 24 months.

2. PROFILE

2.1 BASIC INFORMATION

Name and Address of the University	
Name	Pandit Deendayal Energy University
Address	Knowledge Corridor, Raisan Village
City	Gandhinagar
State	Gujarat
Pin	382426
Website	https://www.pdpu.ac.in

Contacts for Communication					
Designation	Name	Telephone with STD Code	Mobile	Fax	Email
Vice Chancellor	S. Sundar Manoharan	079-23275014	9426383008	079-23275030	registrar@pdpu.ac.in
IQAC / CIQA coordinator	Vivek Pandya	079-23275008	9824225220	079-23275022	iqac@pdpu.ac.in

Nature of University	
Nature of University	State Private University

Type of University	
Type of University	Unitary

Establishment Details	
Establishment Date of the University	04-04-2007
Status Prior to Establishment, If applicable	

Recognition Details		
Date of Recognition as a University by UGC or Any Other National Agency :		
Under Section	Date	View Document
2f of UGC	11-07-2014	View Document
12B of UGC		

University with Potential for Excellence	
Is the University Recognised as a University with Potential for Excellence (UPE) by the UGC?	No

Location, Area and Activity of Campus							
Campus Type	Address	Location*	Campus Area in Acres	Built up Area in sq.mts.	Programmes Offered	Date of Establishment	Date of Recognition by UGC/MHRD
Main campus	Knowledge Corridor , Raisan Village	Urban	98.15	124868.7	UG, PG and Ph.D.		

2.2 ACADEMIC INFORMATION

Furnish the Details of Colleges of University

Type Of Colleges	Numbers
Constituent Colleges	4
Affiliated Colleges	0
Colleges Under 2(f)	0
Colleges Under 2(f) and 12B	0
NAAC Accredited Colleges	0
Colleges with Potential for Excellence(UGC)	0
Autonomous Colleges	0
Colleges with Postgraduate Departments	4
Colleges with Research Departments	4
University Recognized Research Institutes/Centers	0

Is the University Offering any Programmes Recognised by any Statutory Regulatory Authority (SRA)	: Yes				
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SRA program	Document				
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Details Of Teaching & Non-Teaching Staff Of University

Teaching Faculty												
	Professor				Associate Professor				Assistant Professor			
	Male	Female	Others	Total	Male	Female	Others	Total	Male	Female	Others	Total
Sanctioned	24				66				174			
Recruited	18	0	0	18	45	6	0	51	129	28	0	157
Yet to Recruit	6				15				17			
On Contract	0	0	0	0	0	0	0	0	0	0	0	0

Non-Teaching Staff				
	Male	Female	Others	Total
Sanctioned				140
Recruited	94	38	0	132
Yet to Recruit				8
On Contract	72	36	0	108

Technical Staff				
	Male	Female	Others	Total
Sanctioned				40
Recruited	29	5	0	34
Yet to Recruit				6
On Contract	26	5	0	31

Qualification Details of the Teaching Staff

Permanent Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	18	0	0	45	6	0	107	28	0	204
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	22	0	0	22
UG	0	0	0	0	0	0	0	0	0	0

Temporary Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	0	0	0	0	0	0	0	0	0	0
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	0	0	0	0
UG	0	0	0	0	0	0	0	0	0	0

Part Time Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD/DM/MCH	0	0	0	0	0	0	0	0	0	0
Ph.D.	1	0	0	0	0	0	28	11	0	40
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	87	15	0	102
UG	0	0	0	0	0	0	0	0	0	0

Distinguished Academicians Appointed As

	Male	Female	Others	Total
Emeritus Professor	1	0	0	1
Adjunct Professor	2	0	0	2
Visiting Professor	0	0	0	0

Chairs Instituted by the University

Sl.No	Name of the Department	Name of the Chair	Name of the Sponsor Organisation/Agency
1	Mechanical Engineering	Suzlon Chair	Suzlon Energy Ltd.
2	Petroleum Engineering	Shell Chair	Shell Energy India

Provide the Following Details of Students Enrolled in the University During the Current Academic Year

Programme		From the State Where University is Located	From Other States of India	NRI Students	Foreign Students	Total
UG	Male	3657	586	259	142	4644
	Female	1298	251	89	56	1694
	Others	0	0	0	0	0
PG	Male	400	62	0	44	506
	Female	207	44	0	11	262
	Others	0	0	0	0	0
PG Diploma recognised by statutory authority including university	Male	4	0	0	0	4
	Female	0	0	0	0	0
	Others	0	0	0	0	0
Doctoral (Ph.D)	Male	156	40	0	13	209
	Female	112	19	0	0	131
	Others	0	0	0	0	0
Diploma	Male	0	0	0	0	0
	Female	0	0	0	0	0
	Others	0	0	0	0	0
Certificate / Awareness	Male	0	0	0	0	0
	Female	0	0	0	0	0
	Others	0	0	0	0	0

Does the University offer any Integrated Programmes?	No
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Details of UGC Human Resource Development Centre, If applicable

Year of Establishment	Nil
Number of UGC Orientation Programmes	0
Number of UGC Refresher Course	0
Number of University's own Programmes	0
Total Number of Programmes Conducted (last five years)	0

Accreditation Details

Cycle Info	Accreditation	Grade	CGPA	Upload Peer Team Report
Cycle 1	Accreditation	A	3.39	NAAC 1 - Peer Team Report.pdf

2.3 EVALUATIVE REPORT OF THE DEPARTMENTS

Department Name	Upload Report
Automobile Engineering	View Document
Business Administration And Commerce	View Document
Chemical Engineering	View Document
Chemistry	View Document
Civil Engineering	View Document
Computer Science And Engineering	View Document
Electrical Engineering	View Document
Electronics And Communication Engineering	View Document
Environmental Engineering	View Document
Information And Communication Technology	View Document
Languages Literature And Aesthetics	View Document
Management	View Document
Mathematics	View Document
Mechanical Engineering	View Document
Nuclear Science And Technology	View Document
Petroleum Engineering	View Document
Phd	View Document
Physics	View Document
Social Sciences	View Document
Solar Energy	View Document

Institutional preparedness for NEP

1. Multidisciplinary/interdisciplinary:	<ul style="list-style-type: none"> • PDEU practices interdisciplinary courses which integrates three disciplines; school of Engineering, Liberal Studies and Management. • Industry 4.0 curriculum integrates all branches of Engineering and sciences. * Open electives like communication skills, Life and Teachings of Swami Vivekananda, Gandhian Thoughts I taught to Engineering students. * Similarly, Mathematics, Science in Every Day life, Environmental Laws, Atmospheric Physics are taught to Liberal Study Students. * Wide range of crisscross
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	<p>courses offering across schools. • Centre of Critical Thinking at the University dedicated to developing engineering and social engineering to grass root issues.</p>
<p>2. Academic bank of credits (ABC):</p>	<p>•PDEU is agreeable to Academic Bank of credits by mandatorily registering themselves under ABC via National Academic Depository (NAD). Credits awarded by a student in one program from an institution may be transferred /redeemed by another institution upon students consent. • Some of the benefits of ABC PDEU acknowledges as benefits are: 1. Online Centralized System 2. Allows students to choose own learning path. 3. Anytime anywhere learning. 4. Multiple entry multiple exists. • PDEU is planning to exchange credits with University of Oklahoma, University of Texas, Edith Cowan University, University of Tulsa, University of Houston, NTPC School of Business, MIT Pune (Initiated; MoU signed). to name a few.</p>
<p>3. Skill development:</p>	<p>• PDEU always believes in finishing school. About 920 students have participated in Industry oriented comprehensive projects in last five years. * The students worked on live projects which made them employable and deployable and job ready. •Skill development starts from Day-1 of a student and they participate in Industrial orientation and training. 6512 students took benefit from the same. •88% of the students every year are absorbed in skill based Industry every year. •Hands on skill provided to students through rural internship, industrial orientation and industrial training. 4517 students benefitted from the skill development program. *We are starting British Petroleum (BP) skill development program for students. 10 courses from National Skill Development courses identified for Phase-1. * 17 skill development courses from International Centre for excellence in Automobile(iACE).</p>
<p>4. Appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course):</p>	<p>• Courses on Life and Teachings of Vivekananda and Gandhian Thoughts is taught to Engineering students. • School of Liberal Studies teaches Bhagvad Gita in World Classic Course. • Foreign Culture and Cultural Influences in youth s taught to students by offering Chinese, Japanese and French classes. • Daastan, the Dramatic club of PDEU, gives a stage to all theatre aspirants to express their art, through emotions fearlessly. Daastan gives everybody an opportunity to</p>

	reinvent their talent on the stage.
5. Focus on Outcome based education (OBE):	<ul style="list-style-type: none"> • OBE is practiced by PDEU. • 1300 courses are mapped with program objectives and course objectives defined as per Bloom Taxonomy. * Course outcome and Program Outcome mapping is diligently followed as per NBA norms. • Course Attainment validated by students, employers and Alumni. • Each student is informed about his/her level of attainment and the goal they achieved with respect to overall goal achievement.
6. Distance education/online education:	<p>PDEU has taught students in online, offline and hybrid mode.</p> <ul style="list-style-type: none"> • 1300 courses were taught in online mode in MS team platform during pandemic. • Exam was conducted in proctored PEXA software. • All the class rooms in PDEU is enabled by ICT tools. • PDEU also envisage distance education in online mode in near future.

Extended Profile

1 Program

1.1

Number of programs offered year-wise for last five years

2020-21	2019-20	2018-19	2017-18	2016-17
49	42	36	33	34
File Description		Document		
Institutional data in prescribed format		View Document		

1.2

Number of departments offering academic programmes

Response: 19

2 Students

2.1

Number of students year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
6211	5637	5166	4601	4073
File Description		Document		
Institutional data in prescribed format		View Document		

2.2

Number of outgoing / final year students year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
1429	1383	1103	962	807
File Description		Document		
Institutional data in prescribed format		View Document		

2.3**Number of students appeared in the University examination year-wise during the last five years**

2020-21	2019-20	2018-19	2017-18	2016-17
6184	5599	5122	4580	4044
File Description		Document		
Institutional data in prescribed format		View Document		

2.4**Number of revaluation applications year-wise during the last 5 years**

2020-21	2019-20	2018-19	2017-18	2016-17
0	0	0	0	0

3 Teachers**3.1****Number of courses in all programs year-wise during last five years**

2020-21	2019-20	2018-19	2017-18	2016-17
1255	1067	879	771	707
File Description		Document		
Institutional data in prescribed format		View Document		

3.2**Number of full time teachers year-wise during the last five years**

2020-21	2019-20	2018-19	2017-18	2016-17
257	234	209	174	182
File Description		Document		
Institutional data in prescribed format		View Document		

3.3

Number of sanctioned posts year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
260	244	209	186	181
File Description		Document		
Institutional data in prescribed format		View Document		

4 Institution**4.1****Number of eligible applications received for admissions to all the programs year-wise during last five years**

2020-21	2019-20	2018-19	2017-18	2016-17
23966	36379	23263	24607	25016
File Description		Document		
Institutional data in prescribed format		View Document		

4.2**Number of seats earmarked for reserved category as per GOI/State Govt rule year-wise during last five years**

2020-21	2019-20	2018-19	2017-18	2016-17
609	495	437	425	450
File Description		Document		
Institutional data in prescribed format		View Document		

4.3**Total number of classrooms and seminar halls****Response: 88****4.4****Total number of computers in the campus for academic purpose****Response: 1452**

4.5

Total Expenditure excluding salary year-wise during last five years (INR in Lakhs)

2020-21	2019-20	2018-19	2017-18	2016-17
6094	7533	6637	5975	5692

NAAC

4. Quality Indicator Framework(QIF)

Criterion 1 - Curricular Aspects

1.1 Curriculum Design and Development

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes(PSOs) and Course Outcomes(COs) of the Programmes offered by the Institution.

Response:

PDEU has designed a curriculum incorporating the demands of Industry 4.0 (Engineering & Sciences) Education 4.0 (Liberal studies) and Logistics 4.0(Management) employing Outcome-Based Education (OBE) and choice based curriculum (CBS). The **curriculum 2020** aims to provide Skill based, inclusive and transforming education. All the programmes offered at PDEU identify Program Specific Outcomes (PSOs) to achieve Graduate attributes in every course with defined six Course Outcomes (COs).

With a perspective to achieve PDEUs Vision and Mission and to subscribe to **National Education Policy** the entire curriculum is revamped to 31% skill based learning, Industry based experiential learning and with **impetus for translational research** by hand-holding with Industry. All the academic programmes are blend of theory and experiment-based learning coupled with industrial exposure and field visits.

PDEU has a **structured process of designing** and developing the curriculum for various programmes which includes feedback from all the stakeholders.

Design:

- Over 1250 courses are oriented towards Industry 4.0, Business 4.0, and Education 4.0 which ensures 17 UG and 28 PG programs in STEM & Humanities with the latest course revision. Department Faculty, BoS, AC, Industry Experts (30%), Recruiters Alumni (15%) are involved in Curriculum Development.
- 177 New Courses Introduced (40 New Core Courses of New Programmes, 50 New Courses in Existing Programmes, and 87 New Elective Courses)
- Industry Collaboration with 175 Industry Organizations & 3 international university courses offered in collaboration with PDEU for students in USA and Australia ensures Industry-Academia connection.
- Industry Internship is mandatory (end of IV semester) for all the students in the Faculty of Engineering & Technology.
- Rural internship for one month is mandatory (end of II semester) for all the students in the faculty of liberal arts.
- Industry readiness is assured by incorporating 31% of the credits for skill development goals.

Learning outcomes:

- All Courses are mapped for COs –POs keeping in view NEP 2020. Bloom Taxonomy level 4- 6 reflected in examination & Evaluation.
- Students, Lab tutors/technicians/ Faculty tutors and instructors practice CO-PO mapping in

teaching and learning making the learning outcomes more enriching. 22000 certificated courses are availed through Coursera availed by 3000+ students.

Interdisciplinary:

- More than 15% of New Courses were introduced. FoET School has made – Compulsory course on Professional Ethics and Human Values. Further Rural Internship / Civic and Social Service Internship are made mandatory for Liberal arts students.
- A mandatory 2+2 Credit theory-Practical course on Industry 4.0 sets a new paradigm shift in the mindset of the students to think with an interdisciplinary approach and to find complementary areas for working together to solve complex engineering problems.

Industry edge & societal impact:

- All the courses offered in all schools have an edge either on Employability, Skill development, or Entrepreneurship to provide holistic education and to become accountable to society.
- 10% percent lecture delivery by industrial experts in each course, and a comprehensive project-based component.
- 75 Industry stakeholders are involved in Curriculum design, Internship and for placement readiness.

Innovation and Entrepreneurship:

- PDEU through its Innovation and Incubation Centre (IIC) promotes new ideas start-ups.

1.1.2 Percentage of Programmes where syllabus revision was carried out during the last five years.

Response: 93.88

1.1.2.1 How many Programmes were revised out of total number of Programmes offered during the last five years

Response: 46

1.1.2.2 Number of all Programmes offered by the institution during the last five years.

Response: 49

File Description	Document
Minutes of relevant Academic Council/BOS meeting	View Document
Institutional data in prescribed format	View Document
Details of Programme syllabus revision in last 5 years	View Document
Link for additional information	View Document

1.1.3 Average percentage of courses having focus on employability/ entrepreneurship/ skill development offered by the institution during the last five years**Response:** 97.97

1.1.3.1 Number of courses having focus on employability/ entrepreneurship/ skill development year-wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
1249	1041	868	750	684

File Description	Document
Programme/ Curriculum/ Syllabus of the courses	View Document
Minutes of the Boards of Studies/ Academic Council meetings with approvals for these courses	View Document
Institutional data in prescribed format	View Document

1.2 Academic Flexibility**1.2.1 Percentage of new courses introduced of the total number of courses across all programs offered during the last five years.****Response:** 84.3

1.2.1.1 How many new courses were introduced within the last five years.

Response: 1058

1.2.1.2 Number of courses offered by the institution across all programmes during the last five years.

Response: 1255

File Description	Document
Minutes of relevant Academic Council/BOS meeting	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

1.2.2 Percentage of Programmes in which Choice Based Credit System (CBCS) / elective course system has been implemented (Data for the latest completed academic year).

Response: 89.8

1.2.2.1 Number of Programmes in which CBCS / Elective course system implemented.

Response: 44

File Description	Document
Minutes of relevant Academic Council/BOS meetings	View Document
Institutional data in prescribed format	View Document

1.3 Curriculum Enrichment

1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics ,Gender, Human Values ,Environment and Sustainability into the Curriculum

Response:

PDEU integrates cross-cutting issues like professional ethics, gender, human values, environment, and sustainability in all the academic programmes through curriculum design. It further maps the courses for programme outcome wherein the courses can demonstrate an awareness of Professional Ethics, Gender, Human Values, Environment, and Sustainability. The efforts of PDEU can be documented below.

Professional Ethics, Gender and Human Values (Programme outcomes 6, 8, &9)

- “Professional Ethics and Human Values” is a compulsory course credited by 780 students from Engineering stream in their first year B. Tech. programme. The course includes human values, morals, values, and ethics.
- The section on ethics related to engineering discusses a variety of moral dilemmas related to the engineering profession.
- There is also a discussion related to research ethics, industrial standards, and code of ethics.
- Other topics include discussion related to safety, risk, and global issues.
- School of Pet. Management (SPM) offers a course on “Business, Society and Governance” which gives the orientation of Professional Ethics and Human Values.
- SPM has ensured that all the courses may have discussions related to the above and are part of the Programme objectives.

Human values and Societal Impact (Programme outcome 3,6,9 &10):

- PDEU also requires the students to undergo Rural, Civic, and Social Service Internship which is integral to all the Technology and Liberal Studies programme for first-year students.
- It is conceptualized as a platform for pre-planned, organized, structured, supervised off-campus experiences within an academic context.
- It helps students understand issues of civic amenities, societal grievances, and models of providing assistance to the needy and unprivileged.
- The internship helps students to comprehend the meaning of life and living.

- During this internship, students are trained to plan and execute an extensive range of social services, social welfare activities, and work in health and philanthropic organizations.
- Students undergo the internship at various NGOs, and community centers.
- Expert Lectures on gender-related issues and human values are regularly organized by various schools as a part of their guest lectures, workshops, conclave, fcpdances etc.

Environment and Sustainability (Programme outcomes 7 &11)

- All experimental courses touch on PO's and Lab technicians/teaching assistants tutor the students on the professional outcomes while doing the practicals.
- All the academic programmes offered by PDEU sensitize students on Environment and sustainability.
- Wherever the courses/topics have relevance and interface with the environment and sustainability it becomes part of the curriculum.
- Two of the departments (i.e. Solar Energy and Nuclear Energy) of PDEU School of Technology offer Masters's and PhD programmes on Environment and Sustainability.
- Department of Electrical Engineering also has many courses in its M. Tech and B Tech programme which offers orientation on environment and sustainability.
- Most schools have courses that include the importance of the Environment and Sustainability.
- An adequate number of courses across the schools sensitize students on Gender, Environment and Sustainability, Human Values, and Professional Ethics.

File Description	Document
Upload the list and description of the courses which address the Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum	View Document

1.3.2 Number of value-added courses for imparting transferable and life skills offered during last five years.

Response: 46

1.3.2.1 How many new value-added courses are added within the last five years.

Response: 46

File Description	Document
Institutional data in prescribed format	View Document
Brochure or any other document relating to value added courses	View Document
Any additional information	View Document

1.3.3 Average Percentage of students enrolled in the courses under 1.3.2 above.**Response:** 26.18**1.3.3.1 Number of students enrolled in value-added courses imparting transferable and life skills offered year-wise during the last five years.**

2020-21	2019-20	2018-19	2017-18	2016-17
720	1488	1607	1402	1276

1.3.4 Percentage of students undertaking field projects / research projects / internships (Data for the latest completed academic year).**Response:** 54.5**1.3.4.1 Number of students undertaking field projects or research projects or internships.**

Response: 3385

File Description	Document
List of Programmes and number of students undertaking field projects research projects/ / internships (Data Template)	View Document
Link for additional information	View Document

1.4 Feedback System**1.4.1 Structured feedback for design and review of syllabus – semester-wise / year-wise is received from 1) Students, 2) Teachers, 3) Employers, 4) Alumni****Response:** A. All 4 of the above

File Description	Document
URL for stakeholder feedback report	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Action taken report of the University on feedback report as stated in the minutes of the Governing Council, Syndicate, Board of Management (Upload)	View Document

1.4.2 Feedback processes of the institution may be classified as follows:

Response: A. Feedback collected, analysed and action taken and feedback available on website

File Description	Document
URL for feedback report	View Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document

NAAC

Criterion 2 - Teaching-learning and Evaluation

2.1 Student Enrollment and Profile

2.1.1 Demand Ratio (Average of last five years)

Response: 15.88

2.1.1.1 Number of seats available year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
2135	1726	1612	1454	1590

File Description

Document

Demand Ratio (Average of Last five years) based on Data Template upload the document

[View Document](#)

• Any additional information

[View Document](#)

2.1.2 Average percentage of seats filled against reserved categories (SC, ST, OBC, Divyangjan, etc.) as per applicable reservation policy during the last five years (Excluding Supernumerary Seats)

Response: 37.12

2.1.2.1 Number of actual students admitted from the reserved categories year wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
199	178	190	148	174

File Description

Document

Average percentage of seats filled against seats reserved (Data Template)

[View Document](#)

Any additional information

[View Document](#)

2.2 Catering to Student Diversity

2.2.1 The institution assesses the learning levels of the students and organises special Programmes for advanced learners and slow learners

Response:

Students Parentage: PDEU takes immense satisfaction in documenting that in this year GATE 2022 results the AIR rank 1 is secured by the PDEU student, and the top 4 out of 10 AIR Rank holders are from PDEU as well. PDEU students admitted into Engineering programme constitute, 50% from IIT JEE main qualified, and 50% from Gujarat Entrance Exam (GUJSET,) considerable number from (diploma to degree) parentage; and students from many countries through Study in India program. Hence at PDEU, we have a unique opportunity to serve both the fast learners as well as to groom a smaller fraction of slow learners.

Assessment methodology: Based on the continuous evaluations process (mid-term exams/quiz/assignments) students are identified into slow learners and advanced learners. The performance of the students varies between theory courses and labs sessions. Faculty members are given independence to be flexible in the teaching pedagogy. *Assessments are synced to the course outcomes and program outcomes wherein weightage of 60:40 is given for internal assessment and end semester examination. Internal assessment is based on assignments, quizzes, short projects, and case-studies.*

Teaching Methodology:**For Advanced learners (AL) :**

1. AL are taken due care in class by enhancing the tutorial problem-solving levels, keeping Blooms taxonomy level to 4-6.
2. In addition, specific topics are given to advanced learners for self-preparation and then participate in teaching to the peers.
3. The advanced learners are encouraged for *student research projects (SRP) funding upto 2.5 lakhs per project (~265 projects during assessment).*
4. Advance learners engage in industry-funded projects termed as *comprehensive projects (>600 capstone projects in 5 years).*
5. Advanced learners are encouraged to *participate in national and international conferences*, supported by the Office of International Relations.
6. 80-90 % students have been to industries for their CPs.
7. *Flipped classroom* is followed so that advanced learning students have more time for self-learning.
8. Faculties like to have *discussions, mini projects, reviews, presentations, model making, and simulation studies.*
9. Additionally, AL are encouraged to be part of *different student chapters.*
10. AL do *certificate courses and different GIAN courses* to furnish the knowledge
11. AL are trained *for competitive exams like GATE* as an avenue for higher level training.

For Slow learners (SL):

1. Faculty help SL to identify the gaps in the learning process.
2. *Diploma to degree students are given extra teaching.*
3. *Remedial classes are scheduled and conducted in addition to regular classes.*
4. Discussion forums are arranged for the slow learners to understand their need and focus on topics.
5. International students from different countries admitted to the schools are given *extra sessions on communication skills for approximately 40h.*
6. SL students are strongly encouraged to involve in 30+ student *professional clubs, skill*

- enhancement and grooming* the students in extracurricular activities while supporting their passion.
7. Slow learners are engaged in *direct one-to-one discussion and doubt solving* is given preference.
 8. More time for *counselling and taking corrective actions for uplifting the knowledge level*
 9. *Encouraged for online course, student research projects, entrepreneurship and leadership training modules*

File Description	Document
Upload Any additional information	View Document
Paste link for additional information	View Document

2.2.2 Student - Full time teacher ratio (Data for the latest completed academic year)	
Response: 24:1	
File Description	Document
Any additional information	View Document

2.3 Teaching- Learning Process

<p>2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences</p> <p>Response:</p> <p><i>Teaching learning pedagogy at PDEU ensures that the dynamics of the corporate world are learnt same time the ICT tools keeps them up to date with the technology. The overall process at PDEU is student centric and visions to make them future ready. PDEU understands the importance of student-centric methods which are imbibed in curriculum through the different learning modules.</i></p> <p>i). Experiential Learning:</p> <ol style="list-style-type: none"> 1. PDEU curriculum is based on outcome based education (OBE) and choice based credit system (CBCS). 2. PDEU has imbibed courses with <i>practical training, skill based training and project work</i>. 3. Over 100 Students have been certified every year through <i>e-learning and online courses (MOOC)</i>. 4. Additionally there are value added courses as electives. Student interactions is also improved thorough <i>alumni connect and alumni webinars</i>. 5. <i>Case-based Learning and the Flipped Classroom</i> instructional strategies are predominantly followed in the management programmes. <p>ii) Participative Learning:</p>

1. Participative learning has been taken care in PDEU through various stages of the program; *rural internship, industrial orientation, industrial training, and comprehensive project.*
2. As a part of *NCC program* about 30+ cadets are trained while 1000+ students have undertaken *Rural Internship / Civic and Social Service Internship (RI/CSSI)* which is primarily a community connect program.
3. Students in the final year (100+) have worked on industrial problems while working on the *Comprehensive Projects. Tinkering Labs/Tod-Fod-Jod Labs* is in place.
4. These lab components are in workshop environments allowing students / staff / faculty to play around with assemblies / components / gizmos / appliances / old equipment donated by neighboring industries/etc.
5. This was intended with an idea to bridge the gap between thinking and doing.

iii) Problem solving methodologies:

1. As a part of HACK 4.0 500+ students in 95+ teams have participated in *Hackathon on electric mobility and energy storage system.*
2. Over 1000 students have undertaken Industry internships.
3. Learning by working on *Student Research Projects (SRP)*. Students involved in SRPs were able to involve in 7+ IPRs in collaboration with faculties.
4. All enrolled students (500+) for placements are also trained for *Career Progressions Activities.*
5. Course on *Independent Study (CIS, as an elective), Business Dissertations, Summer Internships* are intrinsic to the management programmes.
6. The lab component allows concept learning to *hands-on training working with real-time systems, data collection, simulations, and case studies* for holistic learning of the course.
7. PDEU focuses on two levels of problem solving; first provides the basic knowledge, concepts and understanding of the topic and then work on thought process by working with assignments.
8. *Tutorial and live problem solving* ensures that students reach the higher levels of blooms taxonomy (BTL-4/5/6).
9. Where ever possible the case studies pertinent to the subject are utilized to understand the perspective and get novel solutions.
10. *IIC, PDEU organizes hackathon and boot camps* that allows an interdisciplinary and focused approach to get the real time solution for problem of societal interest in the stipulated time frame.
11. These platforms provide a competitive environment to the students and build an edge in the domain.

File Description	Document
Upload any additional information	View Document
Link for Additional Information	View Document

2.3.2 Teachers use ICT enabled tools including online resources for effective teaching and learning process.

Response:

At PDEU faculties are committed to teach with technology. Few of the ICT tools that are used regularly used are presented here.

1. **PDEU Learning Management System (LMS) through TCSion online platform** – Initially PDEU handled most of its data on CMS, a content management system. Later a robust LMS via TCSion platform has been implemented for handling all the data concerning to faculty and students. All the grading and marks for the subjects are also accessed through the same platform.
2. **MS-Teams** – Amid COVID Pandemic PDEU went on to synchronize and make uniformity in teaching process. Microsoft Teams was licensed and is used as the platform for conducting online classes, have online meetings and reviews, file storage and sharing, and integrating all the teaching learning processes online.
3. **PEXA** – PDEU adopted an online exam and proctoring through EFH-PEXA platform by littlemore innovations (<https://www.littlemoreinnovation.com>). All students (5000+) across PDEU had proctored based online examinations through the platform. Entire exam conduction process have proctoring, question paper upload, answer script submission and evaluation is done on this platform.
4. **Zoom** - Zoom was used as an alternate online teaching tool this was later replaced with MS-Teams. PDEU has Zoom license and is currently used for conducting webinars and conferences. Students join online in bigger numbers on the platform.
5. **Audio/visual Education** is the need of an hour and PDEU faculties are well verse with the variety of these tools. The audiovisuals are used for providing instructions, where ever required to showcase the particulars of process/component/equipment videos are played. **MS Powerpoint/Word/Excel/Adobe PDF** – All the faculties use the different MS software's for better interaction, showcasing and focusing on intricacies of the topic. School of Petroleum Technology and School of Technology has a dedicated **Youtube Channel** that has been created to support students in learning

**Channel Link - <https://www.youtube.com/channel/UCW78bb8-jYYDpyQ7BiPOj5A>
https://www.youtube.com/channel/UC_R8zQXIGQYPQ2Qd4g0uwVw**

6. **Updated Smart Classroom** - PDEU has made the digital devices available to cater the changing needs of taking classes online along with the existing computer and projectors. Additionally, digital writing pads, mic, speakers are assembled with the available facilities to enhance teaching learning process.
7. **Online Quiz Kahoot** - Kahoot is used to create a user-generated multiple-choice quizzes that can be accessed via a web browser or the Kahoot application Students answer the quiz online and gets evaluated immediately.
8. **Google Classroom** –Google Classroom has been widely used with multifold advantages. It was used (a) sharing and grading the assignments (b) making announcements to the class which can be commented on by students allowing for two-way communication between the teacher and students and (c) provide the course content.
9. **Prezi & Canva** – Prezi & Canva are used as an alternatives to the MS PowerPoint.
10. **Specific Subject Oriented Software's** – Aspen/CAD/Polymath/COMSOL/Matlab/C – Different software's are taught and used as a part of teaching learning process specific to different subjects. These may be core technical subjects and/or designing and/or modeling and simulation software. These are used to provide demo and live learning of the software in class teaching.

File Description	Document
Upload any additional information	View Document
Provide link for webpage describing the " LMS/ Academic management system"	View Document

2.3.3 Ratio of students to mentor for academic and other related issues (Data for the latest completed academic year)

Response: 24:1

2.3.3.1 Number of mentors

Response: 257

File Description	Document
Upload year wise, number of students enrolled and full time teachers on roll.	View Document
mentor/mentee ratio	View Document
Circulars pertaining to assigning mentors to mentees	View Document

2.4 Teacher Profile and Quality

2.4.1 Average percentage of full time teachers against sanctioned posts during the last five years

Response: 97.77

File Description	Document
Year wise full time teachers and sanctioned posts for 5 years	View Document
Any additional information	View Document

2.4.2 Average percentage of full time teachers with Ph.D./D.M/M.Ch./D.N.B Superspeciality/D.Sc./D’Lit. year-wise during the last five years

Response: 75.29

2.4.2.1 Number of full time teachers with *Ph. D. / D.M. / M.Ch. / D.N.B Superspeciality / D.Sc. / D.Litt.* year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
212	197	161	122	114

File Description	Document
List of number of full time teachers with Ph D/D M/M Ch/D N B Superspeciality/DSc/D Lit and number of full time teachers for 5 years	View Document
Any additional information	View Document

2.4.3 Average teaching experience of full time teachers in the same institution (Data for the latest completed academic year in number of years)

Response: 5.08

2.4.3.1 Total experience of full-time teachers

Response: 1306.31

File Description	Document
List of Teachers including their PAN, designation, dept and experience details	View Document
Any additional information	View Document

2.4.4 Average percentage of full time teachers who received awards, recognition, fellowships at State, National, International level from Government/Govt. recognised bodies during the last five years

Response: 83.33

2.4.4.1 Number of full time teachers receiving awards from state /national /international level from Government/Govt. recognized bodies year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
42	59	30	26	19

File Description	Document
Institutional data in prescribed format	View Document

2.5 Evaluation Process and Reforms

2.5.1 Average number of days from the date of last semester-end/ year- end examination till the declaration of results year-wise during the last five years

Response: 13.7

2.5.1.1 Number of days from the date of last semester-end/ year- end examination till the declaration of results year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
19.02	15.71	14.23	12.95	6.60

File Description	Document
List of Programmes and date of last semester and date of declaration of results	View Document
Any additional information	View Document

2.5.2 Average percentage of student complaints/grievances about evaluation against total number appeared in the examinations during the last five years

Response: 0.03

2.5.2.1 Number of complaints/grievances about evaluation year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
1	0	6	1	0

File Description	Document
Number of complaints and total number of students appeared year wise	View Document
Any additional information	View Document

2.5.3 IT integration and reforms in the examination procedures and processes (continuous internal assessment and end-semester assessment) have brought in considerable improvement in examination management system of the institution

Response:

PDEU has brought multiple reforms in the examination procedures and processes integrating IT into internal and end semester examination assessment. The reforms are very well taken and have been successful in bringing positive impact on the overall evaluation process. This exercise was necessitated due to four semesters of online and hybrid more of teaching learning process during the assessment period, in

the context of pandemic.

Specific reforms implemented in the examination process are listed below.

- 1. Proctored based End Semester Online examination through PEXA-EFH for all students (5000+) across the University** Amidst pandemic the tool became an effective way proctoring the examination process. Students were able to get a realistic feel of exam securing the place for 3 hours and working effectively for the exam.
- 2. Online proctored based invigilation by 345 faculties**
Nominated faculties are able to invigilate the virtual room/s with multiple students appearing for the given examination. Cameras of the students are on and the live invigilation can be done for the students. Facilities to allow to interact and send personal messages can also be posted and cannot be avoided by the students. Faculty presence is ensured thorough invigilation and uniformity is achieved.
- 3. Continuous internal assessment through Online MS Team Platform for all students (5000+) across the University**
All the subjects are evaluated for internal assessment on the Microsoft Teams platform. Faculties upload the assignments/quiz/case studies on the platform and students have to submit the same in the stipulated time schedule. Uniformly the students have to appear for the assessments and are evaluated number of time giving the real feel of continuous assessment through the semester and the progress is monitored.
- 4. Online assessment for 25000 answer books through PEXA-EFH. Access to evaluated answer books to students** Proctored based end semester examination answer books are available to the faculties with their login credentials on the EFH platform. Faculties also need to evaluate the answer scripts question wise and put marks accordingly. These evaluated manuscripts can be seen by the students once the evaluation is complete. This makes the complete process online and hassle free. The queries can be attained online.
- 5. Result processing and Publishing through TCSiON for all students (5000+) across the University**
Student's evaluation which is done over the complete semester is collated by the faculties. These evaluations has to be filled in the template mark entry excel sheet for the specified subject. Once the sheets are uploaded on the TCSion portal. The portal process the details for each candidate and subject wise grades are displayed against each subjects. Results are also published online for the students to view. Hardcopies of the results are then printed and distributed to the students through the administration.

File Description	Document
Year wise number of applications, students and revaluation cases	View Document
Any additional information	View Document
Link for additional information	View Document

2.5.4 Status of automation of Examination division along with approved Examination Manual

Response: 100% automation of entire division & implementation of Examination Management System (EMS)

File Description	Document
Current manual of examination automation system and Annual reports of examination including the present status of automation	View Document
Current Manual of examination automation system	View Document

2.6 Student Performance and Learning Outcomes

2.6.1 The institution has stated learning outcomes (generic and programme specific)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents

Response:

The institution has stated learning outcomes (generic and programme specific)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents.

Outcome-Based Education (OBE) system is adopted in all the programmes conducted by the four Schools at the University. The Programme Educational Objectives (PEOs), Programme Outcomes (POs), Course Outcomes (COs), etc. are articulated based on the six levels in Bloom's Taxonomy and rigorously followed for all courses in a particular programme. The COs are mapped to the concerned programme's POs and the course syllabus and assessment strategies are derived based on the mapping. All programmes adhere strictly to the norms of statutory bodies such as NAAC, NBA, etc. and the curricula are developed in line with the NEP 2020, incorporating cutting edge topics pertaining to Industry 4.0. Each department displays the Vision, Mission, POs, and PSOs on their website. These are also displayed in the cubicles of each faculty member of respective department

1. <https://sot.pdpu.ac.in/chemical-dept.html>
2. <https://sot.pdpu.ac.in/mech-dept.html>
3. <https://sot.pdpu.ac.in/electrical-dept.html>

Course Outlines are prepared and distributed to students of each programme at the beginning of a term (semester/trimester, as the case may be) and communicated via online platforms such as MS Teams and emails for ease of records and transmission to each batch of students. The same are reflected in the LMS too. A Handbook containing course requirements and syllabi is shared with students at the beginning of a programme that details the course objectives and outcomes, suggested breakdown of modules and assessment criteria.

OBE Architecture:

- 1.6 Course outcomes are listed for each subject.
2. There are four units in each subject mapped to course outcomes.
3. Course outcomes are mapped to programmes outcomes.
4. Lab courses also have huge banner posters listed the CO-PO mapping to make students aware of the CO's listed against graduate attributes.
5. Students are trained to reason out the outcomes for each experiment/project /or any other experiential learning.
6. Mid semester exams sensitizes how each question is tagged to CO's, and to the level of blooms taxonomy.
7. Students are aware of the objective of end semester exam and the wholesome learning to attain Graduate attributes.

Mid-course corrections for OBE:

1. Based on students review after first mid semester, students feedback helps mid-course corrections to implement and improve the rest of the semester lectures.
2. Students also become aware of the changes they need to bring in for the rest of the semester.

Laying emphasis on Program Outcome 3: Solving complex engineering problem:

1. More emphasis is laid on problem solving skills. This is attained through numerical problem solving tutorials.
2. Experiential learning improves aptitude to solve complex engineering problems..
3. Attaining PO6-PO8 is through experiential learning. Aspects of societal importance, environmental issues and ethical practices is encompassed in the lab exercises.

File Description	Document
Upload any additional information	View Document
Paste link for Additional Information	View Document

2.6.2 Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution

Response:

Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution.

Evaluation of attainment:

1. Detailed Course Outlines contain POs, CO-PO mapping details, assessment component details and schedule, session plan, mapping of assessment components to COs and rubrics for assessment.
2. Separately, instructions for continuous evaluation components are provided as per specific course's requirement.
3. The OBE Assessment comprises of three components measured at the end of respective assessment components of a course (viz., Internal Assessment/ Continuous Evaluation Components; Midterm/Midsem Exams; Endterm/EndSem Exams).
4. Course file for each course is evaluated periodically by the HoD, Director of the Schools.
5. Remedial measures are taken if some of the program outcomes are not achieved.
6. Attainment levels are assessed after every passing out of batches.
7. 5 out of 10 Engineering programs have gone through NBA accreditation process. Two have been awarded three year NBA accreditation.
8. NBA results for three departments are awaited.
9. NBA vouches for the compliance of a full proof OBE process.

Attainment of Course Outcomes

1. Student-wise CO evaluation for Internal Assessment Components of a course is collated in an MS Excel worksheet.
2. The formulae for calculating Final COs and Weighted COs as per the stated learning outcomes communicated to students at the beginning of each academic term are used to arrive at the cumulative Internal Assessment attainment for each student.
3. Similar worksheets are generated for the Hall Exam components of evaluation. Data from the three worksheets are then used to compile Average level of attainment for each CO.
4. The cumulative of both the components gives the individual assessment. Students individual performance is then compared to the target level set at the beginning of the term to confirm the course attainment level.
5. All course outcomes are also mapped to the POs and PSOs which inturn decide the PO and PSO attainment.
6. Total assessment encompass Direct and Indirect assessments as two stages of PO attainment.

Attainment of Program Outcomes (Course-wise direct linkages)

1. Course Outcome attainment levels are codified at the beginning of an academic term. (E.g., 60% scoring at or above an agreed-upon level for a CO means the CO is attained and it is coded "1" in an Excel worksheet for calculating PO Attainment; else, "0").
2. The worksheet draws from the details provided in the previous ones on attainment of course outcomes (described earlier here).
3. The summary and target-versus-attained levels etc. are depicted pictorially too for ease of interpretation and analysis.
4. Based on these analyses, the Course Outcome and Program Outcome related actions are proposed

in faculty meetings of the respective areas/branches.

File Description	Document
Upload any additional information	View Document
Paste link for Additional Information	View Document

2.6.3 Pass Percentage of students(Data for the latest completed academic year)

Response: 97.34

2.6.3.1 Total number of final year students who passed the examination conducted by Institution.

Response: 1429

2.6.3.2 Total number of final year students who appeared for the examination conducted by the Institution.

Response: 1468

File Description	Document
Upload list of Programmes and number of students passed and appeared in the final year examination	View Document
Upload any additional information	View Document

2.7 Student Satisfaction Survey

2.7.1 Online student satisfaction survey regarding teaching learning process

Response: 3.3

File Description	Document
Upload database of all currently enrolled students	View Document

Criterion 3 - Research, Innovations and Extension

3.1 Promotion of Research and Facilities

3.1.1 The institution's Research facilities are frequently updated and there is a well defined policy for promotion of research which is uploaded on the institutional website and implemented

Response:

PDEU research portal "Research Information Management System (RIMS)" details the sponsored research projects, outcomes, and progression of student research, faculty research, IPR patent activities, MOU's, Industry consultancy projects, and primarily focuses on the national agenda in frontier areas.

- The Dean –Office of Research and Development (DORD) provides extensive support to conduct investigative, scholarly, and creative research activities for the entire PDEU fraternity.
- RIMS aims to create policies, procedures, and outcomes of research at PDEU

Updated robust research facilities at PDEU: A 360-degree view of all the research facilities is available at the website:

During the assessment period, more than 180 Crores were spent on creating new research facilities: New buildings, infrastructure, Equipment, Pilot plants, Thematic areas.

Exclusive Facilities within the campus but outside the academic area:

- 1 MW Solar Farm integrated to grid.
- 0.7 MW Rooftop solar connected to grid (2021).
- 45 MW solar panel manufacturing line (2021-2022).
- International Automobile center of excellence (iACE) (2019).
- Solar thermal desalination facility; Indo European Horizon 2020 facility.

Exclusive research facilities within the academic area:

- Translational research centre (TREC-PDEU) housing Additive manufacturing (2021).
- Seimens center for excellence in Automation
- Solar research development centre.
- Drilling cementing Stimulation lab (2019)
- Innovation and Incubation council (2016).
- Carbon di-oxide capture and sequestration(2021).

Creation of new research facilities:

- Gamma chamber(2022)
- Perovskite solar cells(2021).
- Energy Storage-based smart grid facility(2021-22).
- Apple lab(2021-22).
- Prototype development facility at Innovation and Incubation center (2021).

- Polymer 3-D printers 6 numbers (2021) for first-year students.
- Halo lens for mixed reality and next-generation computing(2021).

Commissioning of new facilities by July 2022:

- 45 MW solar assembly line by July beginning, Site is getting prepared, machinery will arrive in May 2022.
- Next-generation computing, Lab is getting fabricated.
- Redox Energy storage battery and grid integration (100 kWh). (Under fabrication).
- First-year chemistry lab (upgraded).

Policy, Procedures, and outcomes

- Students seed fund (up to 2 Lakhs), >250 benefitted.
- Faculty seed fund (up to 10 Lakhs). > 30% availed.
- Faculty initiation grant (up to 2.5 Lakhs). >120 have availed.
- IPR Policy (Design, Process, Product, Copyright): Indian and International, >1 crore invested.
- Professional Development Fund (3 lakhs /faculty/3 years), Over 250 have availed, > 7 crores invested.

Policy for Research support

- Consultancy Policy, >20% faculty have availed.
- Policy for research support/ matching grant.
- Industry-funded projects (Largely Institutional projects)

Policy for Financial management of funded projects:

- Internal Audit (Assist in Purchase, MoU, Consultancy, Project implementation, Mitigations)
- Approval process for travel (While availing Project funds, As per norms)
- Approval process for JRF/SRF
- Approval process for Instrument purchase (Tender, Negotiations, Fund release)
- Approval for annual maintenance (AMC, Removal of obsolescence)

Policy for International collaborations:

- International collaboration like EU, USA, and UK partnerships are defined.
- Policy for availing funds involving FCRA
- Policy for International Exchange program.
- Policy for faculty sabbatical
- All the policies are well defined and updated.

A Research Advisory Council consisting of eminent researchers is in place.

The **office of DORD functions effectively** with IIC, the Director of Academic Affairs, Academic council, and launches new initiatives.

File Description	Document
Minutes of the Governing Council/ Syndicate/Board of Management related to research promotion policy adoption	View Document
Any additional information	View Document
URL of Policy document on promotion of research uploaded on website	View Document

3.1.2 The institution provides seed money to its teachers for research (average per year, INR in Lakhs)

Response: 66.34

3.1.2.1 The amount of seed money provided by institution to its faculty year-wise during the last five years (INR in lakhs).

2020-21	2019-20	2018-19	2017-18	2016-17
12.80	94.15	132.35	60.71	31.67

File Description	Document
Minutes of the relevant bodies of the University	View Document
Institutional data in prescribed format	View Document
Budget and expenditure statements signed by the Finance Officer indicating seed money provided and utilized	View Document
Any additional information	View Document

3.1.3 Percentage of teachers receiving national / international fellowship / financial support by various agencies for advanced studies / research during the last five years.

Response: 5.78

3.1.3.1 The number of teachers who received national / international fellowship / financial support by various agencies for advanced studies / research year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
14	20	14	9	4

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the award letters of the teachers	View Document
Any additional information	View Document

3.1.4 Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other research fellows enrolled in the institution during the last five years.

Response: 138

3.1.4.1 The Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other research fellows enrolled in the institution year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
44	46	25	15	8

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.1.5 Institution has the following facilities to support research

- 1. Central Instrumentation Centre**
- 2. Animal House/Green House**
- 3. Museum**
- 4. Media laboratory/Studios**
- 5. Business Lab**
- 6. Research/Statistical Databases**
- 7. Mootcourt**
- 8. Theatre**
- 9. Art Gallery**
- 10. Any other facility to support research**

Response: A. 4 or more of the above

File Description	Document
Upload the list of facilities provided by the university and their year of establishment	View Document
Upload any additional information	View Document
Paste link of videos and geotagged photographs	View Document

3.1.6 Percentage of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other recognitions by national and international agencies (Data for the latest completed academic year)

Response: 68.42

3.1.6.1 The Number of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other similar recognitions by national and international agencies.

Response: 13

File Description	Document
Institutional data in prescribed format	View Document
e-version of departmental recognition award letters	View Document
Any additional information	View Document

3.2 Resource Mobilization for Research

3.2.1 Extramural funding for Research (Grants sponsored by the non-government sources such as industry, corporate houses, international bodies for research projects) endowments, Chairs in the University during the last five years (INR in Lakhs).

Response: 5750

3.2.1.1 Total Grants for research projects sponsored by the non-government sources such as industry, corporate houses, international bodies, endowments, Chairs in the institution year-wise during the last five years (INR in Lakhs).

2020-21	2019-20	2018-19	2017-18	2016-17
1000	1000	1000	1250	1500

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the grant award letters for research projects sponsored by non-government	View Document
Any additional information	View Document

3.2.2 Grants for research projects sponsored by the government agencies during the last five years (INR in Lakhs).

Response: 8111.91

3.2.2.1 Total Grants for research projects sponsored by the government agencies year-wise during the last five years (INR in Lakhs).

2020-21	2019-20	2018-19	2017-18	2016-17
1344.97	2205.58	1513.32	1443.11	1604.93

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the grant award letters for research projects sponsored by government	View Document

3.2.3 Number of research projects per teacher funded by government and non-government agencies during the last five years

Response: 1.35

3.2.3.1 Number of research projects funded by government and non-government agencies during the last five years.

Response: 57

3.2.3.2 Number of full time teachers worked in the institution year-wise during the last five years..

Response: 211

File Description	Document
Supporting document from Funding Agency	View Document
Institutional data in prescribed format	View Document
Paste Link for the funding agency website	View Document

3.3 Innovation Ecosystem

3.3.1 Institution has created an eco system for innovations including Incubation centre and other initiatives for creation and transfer of knowledge.

Response:

A well-defined ecosystem for innovation is evident from the mechanism of the support system for R&D.

Set parameters for Innovation: TECHNOLOGY READINESS LEVEL AS THE PLUMB LINE.

- To enhance the innovation ecosystem, PDEU has outlined the mapping of technology readiness level (TRL 0-10) as a marker to scout the innovation.
- University endorses any evolution from TRL 0-2 (publication) to project funding (TREL 3-4) to patented technology (TRL 5-7) to prototype product development (TRL 8-10) as the growth mode.
- This TRL index keeps the entire faculty and student progression in focus to critically evaluate the innovation pathway.
- Once the readiness of technology is achieved, PDEU-IIC becomes visible to propose a business model for innovation and to scout for incubation.

PDEU Innovation and Incubation center(Section 8 Company):

- PDEU-IIC is an incubator established in 2014 by Pandit Deendayal Energy University (PDEU) as which got formally registered in 2017 u/s 8 of Companies Act, 2013.
- Till 2021, PDEU-IIC has incubated more than 120 Startups including more than 55 registered companies in different domains such as waste management, energy, and environment, IT & IoT, Fintech, Cleantech, etc.
- More than 200 employment generated
- More than Rs.40,00,00,000 of sales by these incubated start-ups.
- The PDEU-IIC start-ups also have to its credit registration of 77 IPRs which includes 11 Patents, 29 Trademarks, 35 Design protection, and 2 PCTs.
- During 2020-21, in spite of the Covid-19 pandemic, PDEU-IIC organized 10 events in collaboration with various government bodies at the state as well as national level for students, start-ups and innovators,
- 2 hackathons with the participation of 1429 students split into 302 teams under 123 mentors. The detailed reports/videos etc. of which are available on the link à <http://iic.pdpu.ac.in/en/event->

and-workshop-two-thousand-twenty.

- Till now, PDEU-IIC has organized more than **110 events with more than 18000 participants till 2021**. The events include hackathons, children's innovation programs, startup training programs, webinars, expert sessions, start-up weekends, workshops etc.
- Presently **200 + granted patents are being mentored for prototype development and business model**.

PDEU GROOMING INNOVATION among Students and Faculty.

- More than 250 projects funded as seed grants for the student research projects, monitored by PDEU-IIC
- Faculty have over 200+ design/product/process patent. Mentored by PDEU-IIC and IPR Apex committee.
- IPR budget in every school and department.

Distinction of PDEU IIC: Handholding with Government of Gujarat and Govt. of India.

- Got ARIIA Ranking in 2020 in the 6-25 band from the MoE, Got 5th position in ARIIA ranking in the year 2021. .
- The nodal agency for DST, GoG, DST GoI , NIDHI, and for Student Start-up and Innovation Policy, GoG.
- Received best Incubation award "Prashansa award" from GoI in the year 2020.
- IIC has received more than 25 Crores during the assessment period

Targets for IIC:

- To aid a minimum of 25 student startups in the next two years and 100 in the next 5 years.
- To facilitate innovators from other schools and colleges for startup activity
- Extend possible help for start-ups to raise more Angel investors and venture capitalists.
- To Help Government's mission in raising more Make in India products.
- To create brand equity for **ENERGY TRANSITION**.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

3.3.2 Number of workshops/seminars conducted on Research methodology, Intellectual Property Rights (IPR), entrepreneurship, skill development during the last five years.

Response: 340

3.3.2.1 Total number of workshops/seminars conducted on Research methodology, Intellectual Property Rights (IPR), entrepreneurship, skill development year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
112	56	92	43	37

File Description	Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.3.3 Number of awards / recognitions received for research/innovations by the institution / teachers / research scholars / students during the last five years.

Response: 37

3.3.3.1 Total number of awards / recognitions received for *research / innovations* won by institution / teachers / research scholars / students year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
12	10	8	4	3

File Description	Document
Institutional data in prescribed format	View Document
e- copies of award letters	View Document
Any additional information	View Document

3.4 Research Publications and Awards

3.4.1 The Institution ensures implementation of its stated Code of Ethics for research through the following: 1. Inclusion of research ethics in the research methodology course work 2. Presence of Ethics committee 3. Plagiarism check through software 4. Research Advisory Committee

Response: A. All of the above

File Description	Document
Code of ethics for Research document, Research Advisory committee and ethics committee constitution and list of members on these committees, software used for Plagiarism check, link to Website	View Document
Any additional information	View Document

3.4.2 The institution provides incentives to teachers who receive state, national and international recognitions/awards 1. Commendation and monetary incentive at a University function
2. Commendation and medal at a University function 3. Certificate of honor 4. Announcement in the Newsletter / website

Response: A.. All of the above

File Description	Document
Institutional data in prescribed format	View Document
e- copies of the letters of awards	View Document
Any additional information	View Document

3.4.3 Number of Patents published / awarded during the last five years.

Response: 209

3.4.3.1 Total number of Patents published / awarded year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
184	12	10	3	0

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.4.4 Number of Ph.D's awarded per teacher during the last five years.

Response: 1.91

3.4.4.1 How many Ph.D's are awarded within last five years.

Response: 101

3.4.4.2 Number of teachers recognized as guides during the last five years

Response: 53

File Description	Document
Institutional data in prescribed format	View Document
URL to the research page on HEI web site	View Document

3.4.5 Number of research papers per teachers in the Journals notified on UGC website during the last five years

Response: 9.21

3.4.5.1 Number of research papers in the Journals notified on UGC website during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
705	403	371	217	250

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.4.6 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

Response: 6.36

3.4.6.1 Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
468	435	187	146	107

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.4.7 E-content is developed by teachers :

1. For e-PG-Pathshala
2. For CEC (Under Graduate)
3. For SWAYAM
4. For other MOOCs platform
5. Any other Government Initiatives
6. For Institutional LMS

Response: A. Any 5 of the above

File Description	Document
Institutional data in prescribed format	View Document
Give links or upload document of e-content developed	View Document

3.4.8 Bibliometrics of the publications during the last five years based on average citation index in Scopus/ Web of Science or PubMed

Response: 7.79

File Description	Document
Bibliometrics of the publications during the last five years	View Document
Any additional information	View Document

3.4.9 Bibliometrics of the publications during the last five years based on Scopus/ Web of Science - h-index of the Institution

Response: 43

File Description	Document
Bibliometrics of publications based on Scopus/ Web of Science - h-index of the Institution	View Document
Any additional information	View Document

3.5 Consultancy

3.5.1 Institution has a policy on consultancy including revenue sharing between the institution and the individual and encourages its faculty to undertake consultancy.

Response:

PDEU adopts unique consultancy policies to encourage academic-industrial partnerships.

- Institute Policy on revenue sharing between individuals and Institution
- 30% to Institute and 70% to individuals.
- Consultancy Committee in place.
- The consultancy should not exceed 30% of gross pay per year
- 26 faculties benefitted from the same.

File Description	Document
Upload soft copy of the Consultancy Policy	View Document
Upload minutes of the Governing Council/ Syndicate/Board of Management related to consultancy policy	View Document
Upload any additional information	View Document
Paste URL of the consultancy policy document	View Document

3.5.2 Revenue generated from consultancy and corporate training during the last five years (INR in Lakhs).

Response: 582.31

3.5.2.1 Total amount generated from consultancy and corporate training year-wise during the last five years (INR in lakhs).

2020-21	2019-20	2018-19	2017-18	2016-17
158.85	218.57	163.93	27.96	13.00

File Description	Document
Institutional data in prescribed format	View Document
Audited statements of accounts indicating the revenue generated through consultancy	View Document

3.6 Extension Activities

3.6.1 Extension activities in the neighbourhood community in terms of impact and sensitising students to social issues and holistic development during the last five years.

Response:

School-based extension activities are carried out:

- 16 projects funded by GOG and corporate. 41 extension and outreach programs conducted in the last five years; UNNAT BHARAT ABHIYAN Scheme availed.
- > 6500 students underwent residential one-month-long rural internships to be sensitized on social issues and to solve complex engineering problems in rural environments.
- 25 Community projects done in the last five years.
- 404 students engaged in urban governance issues for 90 days.
- Rural internship for one month is mandatory (end of II semester) for all the students in the faculty of liberal arts. and faculty of engineering and technology.
- Collaborate with 5 NGOs in scouting rural internships.
- PDEU has adopted 5 villages to emancipate the rural community based on 'unnat-bharat abhiyan' scheme using engineering solutions.
- University sensitizes students and staff about 'Pradhan Mantri Sahaj Bijli Har Ghar Yojana – Saubhagya' which is to provide energy access to all by last mile connectivity and electricity connections to all.
- University sensitizes about 'PM Har Ghar Jal Yojana' (Jal Jeevan Mission). As a result, a center for wastewater treatment and management is established to develop low-cost drinking water. Indo-EU Horizon 2020 consortium.

Extension activities conducted by the Office of Student Activities, Involvement & Leadership (OSAIL)

- The events organized by OSAIL complements students' academic experiences by providing services and resources that engage students in creating campus culture through social, cultural, intellectual, spiritual, athletic, recreational, artistic, political, and service opportunities.
- Number of extension and outreach programs conducted in collaboration with industry, community, and Non- Government Organisations through NSS/NCC/Red cross/Youth Red Cross (YRC), etc.,
- During the year, more than **700 students participated in various social activities including creating awareness about cleanliness (swachhata week)**, the importance of organ donation, village surveys, tree plantation, gender equality safety, blood donation camps etc. among others.
- The OSAIL organizes Vacation Workshops under Community Development Initiative (CDI) every year. These programmes include workshops such as Terracotta, Spoken English, Folk Dance, Art & Craft, Computer, Mehndi, and Drama, wherein children from the neighboring villages participate along with the students at the university.
- NCC cadets are trained for the Republic Day parade and to participate in all nation-building events.
- To sensitize the students towards social issues and to attain holistic development, opportunities are provided for student participation and leadership experiences in a variety of officially recognized clubs and organizations. Currently it mentors and funds around 32+ student clubs which conducts around 175 events throughout the academic year. The staff is committed to delivering quality advising, resource materials, leadership development opportunities, and administrative support

services to impact students' growth and development and enhance the success of each student organization.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

3.6.2 Number of awards received by the Institution, its teachers and students from Government /Government recognised bodies in recognition of the extension activities carried out during the last five years

Response: 0

3.6.2.1 Total number of awards and recognition received for extension activities from Government/ Government recognised bodies year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
0	0	0	0	0

File Description	Document
Institutional data in prescribed format	View Document
e-copy of the award letters	View Document
Any additional information	View Document

3.6.3 Number of extension and outreach programs conducted by the institution through NSS/NCC, Government and Government recognised bodies during the last five years

Response: 110

3.6.3.1 Number of extension and outreach programs conducted by the institution those through NSS/NCC, Government and Government recognised bodies during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
41	23	21	16	09

File Description	Document
Reports of the event organized	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.6.4 Average percentage of students participating in extension activities listed at 3.6.3 above during the last five years

Response: 34.92

3.6.4.1 Total number of students participating in extension activities listed at 3.6.3 above year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
2631	2304	2014	1007	1242

File Description	Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.7 Collaboration

3.7.1 Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship per year

Response: 202.8

3.7.1.1 Total number of Collaborative activities with other institutions / research establishment / industry for research and academic development of faculty and students year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
245	318	163	156	132

File Description	Document
Institutional data in prescribed format	View Document
Copies of collaboration	View Document
Any additional information	View Document

3.7.2 Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during the last five years.

Response: 80

3.7.2.1 Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research year-wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
18	21	18	9	14

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the MoUs with institution/ industry	View Document

Criterion 4 - Infrastructure and Learning Resources

4.1 Physical Facilities

4.1.1 The institution has adequate facilities for teaching - learning. viz., classrooms, laboratories, computing equipment, etc.

Response:

This University has developed a high-tech campus with modern facilities/learning resources for quality education and the promotion of research and development activities.

Infrastructure for teaching and learning process is premium at PDEU with state of art facilities. Classrooms created with proper finance allocation, planning, execution and maintenance. Most of the facilities are of international standards.

Class rooms:

- Total 88 classrooms which includes also 12 lecture theatres of 120 to 240-sitting capacity.
- All classrooms are ICT-enabled also air conditioned.
- Each Classroom is equipped with multimedia projector, touchpad, VGA distributor, Audio-Video Aids, internet connectivity, computer systems, sound-absorbing walls, and ceiling in addition to the conventional methods of teaching.
- The university has state of the art auditorium of 480 capacity that is used not only by the university, but also by several governmental departments for guest lectures, conferences, workshops, etc.

Laboratories:

There are 89 State-of-the-art Academic Laboratories, 32 Research laboratories with cater to several verticals,

Sciences: 1st Year & PG experimental Labs

Management: Business Analytics

Manufacturing: Advanced Welding Research, Metal Additive Manufacturing,

Simulation: Product Design and Simulation,

Analytical: SEM/EDX, Electrochemical, XRD Laboratory etc.

Thermal: Bio-Fuel & Bio-Energy Studies.

Spectroscopy: HPLC, GCMS & UV visible spectroscopy, Raman spectroscopy.

Skill Based: 3D printing, Welding, conventional, non-conventional and CNC machining.

Arts: Media Lab, Fine & Performing Arts, Psychology, Language Lab.

Domain Specific Facilities:

University has established **domain specific facilities** to promote interdisciplinary learning and research viz.

- **Solar Research & Development**
- **Siemens Center of Excellence**
- **Drilling, Cementing and Stimulation**
- **Excellence in Geothermal Energy**
- **Bio-fuels and Bio-energy**
- **International Automobile Center for Excellence**

University has spent **INR 243 crores in establishing a world-class center of excellence** in association with industry and government organizations. All the departments/schools of the university have well-equipped research laboratories which are regularly upgraded with necessary instrumentation and consumables. These facilities promote interdisciplinary research, learner-centric and experiential teaching-learning experiences.

University has established the Innovation and Incubation Cell with the support of state and central government to promote innovation and entrepreneurship among the students. The center is spread over 2000 sq. Ft area and services like technical support, financial support, access to VC/ angel investors, access to workshops and laboratories, company formation and IPR Services, etc.

Computing equipments:

The entire **campus is Wi-Fi enabled with 2.5 GBPS internet connectivity** and allows teachers and students to access the Internet for a dynamic teaching-learning process. University has 03 virtually connected, fully automated, and air-conditioned libraries with **over 1.5 lakhs books and e-books, periodicals, references, national and international journals**, CD-ROMs covering all aspects of academic studies and research material.

The university also has a media laboratory for the recording of audio/video lectures. University has **02 language laboratories and 04 computer centers and 11 computer laboratories, 2200+ desktop computers/laptops, 72+ Servers (IBM, HP, and DELL), 350+ TB Storage Area Network, Free NAS Storage Appliances, 28 Virtual Servers, and 5 Physical Servers, 50+ Application software, 150 Wi-Fi access points, 25+ km Fiber Optic Cables** with ring topology for teaching and learning, improving communication skills and soft skills.

University has a separate Amenity Department and Infrastructure Development Committee establishing new infrastructure, space allocation, and regular maintenance of the physical infrastructure. Optimal utilization of the available space has been a constant attempt of the university.

File Description	Document
Paste link for additional information	View Document

4.1.2 The institution has adequate facilities for cultural activities, yoga, games and sports (indoor & outdoor); (gymnasium, yoga centre, auditorium, etc.,)

Response:

In the modern era, Sports and Yoga play a very vital role in physical & mental fitness and the holistic development of the human being. The University has paid special attention to establishing excellent and extensive sports facilities, comprehensive infrastructure for holding sports/cultural events and other co-curricular activities.

Sports Facilities

The University has **sports facilities spread over 83,902 Sq.mtr. (20.7 Acre)** which include **cricket, basketball, football, volleyball, basketball, lawn tennis, badminton, fitness centers** etc. Along with available sports/cultural facilities, the University has prepared a **plan for establishing Sports Complex over 187768 Sq.mtr** area to include modern sports facilities such as swimming, shooting, squash along with regular sports facilities. The **Office of Student Activities, Involvement & Leadership (OSAIL)** at the University complements students' academic experiences by providing services and resources that engage students in creating campus culture through social, sports, cultural, intellectual, spiritual, athletic, recreational, artistic, political, and service opportunities. Coaching is provided to the students for various sports activities and fitness through coaches and fitness trainers. This is reflected also in the increasing active participation in sports activities by a number of students.

Cultural Fest

The School of liberal studies plays a very active role in promoting cultural and social activities in the university and in the nearby communities. **Open-air theatres, performing arts rooms** are exclusively available for practicing and performing cultural events. The **annual cultural fest "Flare"** is a unique fest of the university where inter-university students are performing various cultural activities at open-air theatres, auditoriums, or at university playgrounds. University has **14 social and cultural clubs and 02 sports clubs** managed by the Office of Student Activities, Involvement & Leadership (OSAIL). These clubs throughout the year organize various social and cultural events.

Auditorium, Yoga Centre and Gymnasium

The university has state of an art **world-class auditorium of 480 capacity** that is used by the university for cultural activities, conferences and workshops, etc. Every year PDEU is organizing an annual sports fest "Petro Cup" where athletes across the country participate in various sports events. University has established **05 gymnasias with world-class facilities for fitness and cardiovascular exercises** which enable students to improve their lifestyle, health and general wellbeing. Through its excellent sports facilities, The University offers opportunities to students for regular work-out, lifestyle management, and interaction.

File Description	Document
Geotagged pictures	View Document
Paste link for additional information	View Document

4.1.3 Availability of general campus facilities and overall ambience

Response:

The University campus is located in Gandhinagar, which is the capital city of Gujarat. The campus is lush green, a rich variety of life there, and home to some exotic varieties of birds. The campus has 98.2 acres of land covered with beautifully landscaped lush green gardens and trees. The **campus has more than 5000 varieties of trees. 72 species of birds** can be seen on the campus due to greenery.

Campus Facilities @ PDEU

The campus is spread over 98.2 acres of land with landscaping, well equipped **89 state of the art academic and 32 research laboratories, 88 fully air-conditioned classrooms ICT enabled classrooms that includes also 12 ICT enabled lecture theatres of 120 to 240 capacity, 01 auditorium of 480 capacity, 04 dining halls of 2000 sitting capacity, sports ground (83,902 Sq.mtr), 24x7 medical facility on campus, on-campus state bank of India bank facility, stationary and reprographic faculty, CCTV surveillance system with 458 cameras, Boys and Girls hostels with 1042 furnished rooms with 2680 students accommodation capacity, fully automated virtually connected 03 libraries of more than 900 Sr. mtr carpet area.**

The entire campus is Wi-Fi enabled with **150 Wi-Fi access points** and LAN connectivity with **25+ km Fiber Optic Cables with ring topology**. The classrooms are equipped with multimedia and audio-visual equipments to facilitate effective learning. The University has ensured that the students enjoy a healthy food diet charted out by a dietitian which is wholesome and nutritious. The food court also provides refreshments throughout the day. The cafeteria is attractively laid out and offers students an eco-friendly environment to relax while deliberating on their academic challenges. Food franchise stalls are available on campus to serve hygienic and variety of food to the students. The **Performing Arts Room facility** is available for the students. Students prepare and practice for their Dance, Music, Drama, and such other activities.

Language Laboratory

To enable students to comprehend and use languages efficiently, the University has set up multi-media **Language Laboratory** (Language Lab) in 2110 sq. feet spacious room, the Language Lab is fully equipped and air-conditioned. The Language Lab is a Computer-based laboratory with the flexibility to conduct laboratory sessions without computers also. The Software has a default 200-hour self-learnable digital program.

Health Care Centre

The University houses a **24 x 7 Health Care Centre on campus** that is open for all students and employees on the working days. Keeping the academic, social-psychological, and emotional needs of its

students in mind, the University has a dedicated counselling psychologist. The counsellor systematically studies and discusses a student's problems and facilitates the student to find an appropriate solution. A nutritious diet and a good workout help student's combat academic stress. The University has set up **05 state-of-the-art wellness centres** that offer cardio weight training equipments and helps students work out under the expert supervision of a certified trainer. The university has a world-class sports facility which includes a volleyball court, a tennis court, a basketball court, a football and cricket ground, a table tennis room, etc. University has a separate campus management department for maintaining the campus facility. The campus has **24 x 7 security services, a CCTV surveillance system with 458 cameras**, and hostel access through a Biometric system. The campus is well maintained by daily cleaning of campus facility by **130 housekeeping staff, Sewage Treatment Plant: 02 Nos. (300 KLD each), Rain Water Harvesting:12 percolation wells(20 KL/Hr).**

File Description	Document
Paste link for additional information	View Document

4.1.4 Average percentage of expenditure for infrastructure augmentation excluding salary during the last five years (INR in Lakhs)

Response: 51.14

4.1.4.1 Expenditure for infrastructure augmentation, excluding salary during the last five years (INR in lakhs)

2020-21	2019-20	2018-19	2017-18	2016-17
7434.73	1032.87	1241.09	912.34	4897

File Description	Document
Upload audited utilization statements	View Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document

4.2 Library as a Learning Resource

4.2.1 Library is automated using Integrated Library Management System (ILMS) and has digitisation facility

Response:

LIC provides the ideal ambiance for the production & dissemination of knowledge, information, insights & intellect across the Schools of Pandit Deendayal Energy University (PDEU). The Library holds a huge

collection of printed as well electronic resources which include books, journals, databases, CDs/DVDs, e-journals, e-magazine, reports, case studies, conference proceedings, training manuals, etc. PDEU has **three fully automated and virtually connected libraries automated since 2006 using the TCSion and KOHA Version: 19.11.02.000** version of Library Management Software (LMS). The total **carpet area** of three libraries is more than **900 Sq. mtr.** All the library operations such as acquisition, cataloging, circulation, and serials control have been automated. In addition, to issue and return facilities of the book, the software provides facilities for book reservations, reminders, and recall of books and overdue related intimations. It is also helpful in the management of serials control of current issues of print journals as well as back copies of journals.

The **Online Public Access Catalogue** of the Library can be accessed online through web OPAC. Users can search the books available in the libraries through KOHA OPAC. Readers can search OPAC through different options like Author, Title, etc. available through the Search tab. Simple and Advanced search options are also available to broaden and narrow the search, respectively. The library has **30 workstations** to facilitate searching/accessing OPAC, e-resources, web browsing, and other academic works. Provision has also been made to allow downloading/printing of material from these resources. Libraries are also **members of DELNET** which facilitates resource sharing amongst different libraries of Institutes of Engineers, Kolkata (lifetime member), IIM, Ahmedabad, IIT Gandhinagar, etc. University has **more than 53000 e-books, subscriptions to Scopus and Web of Science, more than 20000 e-journals.**

The library can be accessed remotely through remote access to the library facility via our web page (pdpulibrary.in). Students can access e-journals, e-books, old exam papers, dissertations and library catalogues, etc. These resources are unique and are of high quality in nature and content. PDEU Library provides **online access to ACS publications, Science Direct, ASME Publications, IEEE Explorer, and many more digital resources on the campus network.** In addition PDEU Library also have access to check the similarity index of scientific reports, papers or project with the use of i-thenticate software (Turnitin).

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.2.2 Institution has access to the following: 1. e-journals 2. e-ShodhSindhu 3. Shodhganga Membership 4. e-books 5. Databases 6. Remote access to e-resources

Response: A. Any 4 or more of the above

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document

4.2.3 Average annual expenditure for purchase of books/ e-books and subscription to journals/e-journals during the last five years (INR in Lakhs)

Response: 108.79

4.2.3.1 Annual expenditure for the purchase of books and journals including e-journals year-wise during last five years (INR in Lakhs)

2020-21	2019-20	2018-19	2017-18	2016-17
104.41	216.76	85.55	65.31	71.91

File Description	Document
Institutional data in prescribed format	View Document
Audited statements of accounts	View Document

4.2.4 Percentage per day usage of library by teachers and students (foot falls and login data for online access) during the latest completed academic year

Response: 11.89

4.2.4.1 **Number of teachers and students using library per day over last one year**

Response: 769

File Description	Document
Details of library usage by teachers and students (Library accession register, online accession details to be provided as supporting documents)	View Document
Any additional information	View Document

4.3 IT Infrastructure

4.3.1 Percentage of classrooms and seminar halls with ICT - enabled facilities such as LCD, smart board, Wi-Fi/LAN, audio video recording facilities. (Data for the latest completed academic year)

Response: 100

4.3.1.1 **Number of classrooms and seminar halls with ICT facilities**

Response: 88

File Description	Document
Institutional data in prescribed format	View Document
Paste link for additional information	View Document

4.3.2 Institution has an IT policy, makes appropriate budgetary provision and updates its IT facilities including Wi-Fi facility

Response:

Pandit Deendayal Energy University - PDEU IT Infrastructure provides world-class computing, network, and educational technology support for the academic and research community. The academic **computing resources include high-end IBM PureFlex System, Blade servers, Rack Servers, Workstations, and Personal Computers**. Green computing is practiced by server consolidation and desktop virtualization using Citrix XenServer products.

Pandit Deendayal Energy University has one of the largest academic computer networks, which includes **14+ well-equipped labs with 2200+ desktops and laptops of premium brands like HP, Lenovo, Dell, etc. supported by 72+ servers of high tech configuration, 350 TB storage area network along with free NAS storage appliances, ensuring compliance of GREEN COMPUTING.**

A state-of-the-art campus network with a **25+ km, 2.5 Gbps fiber** optic backbone connects all the Institution and residence buildings, with a **24x7 internet facility** through multiple service providers via Internet leased lines managed by **200+ cisco core switches (L2,L3), 150+ access point, 10000+ nodes for 9000+ users across PDEU campus.**

To manage and maintain the IT infrastructure annual budget is allocated by PDEU, last 5 years IT budget is shown in the table distributed under capital expenditure (CAPEX) & operational expenditure (OPEX) annually.

Year	CAPEX	OPEX
2016-2017	1.61 crore	0.85 crore
2017-2018	1.98 crore	1.20 crore
2018-2019	2.67 crore	1.30 crore
2019-2020	1.88 crore	1.25 crore
2020-2021	0.34 crore	1.05 crore

IT infra supports the teaching and learning process through, a Learning Management System, which has a wide range of learner-centric tools. In addition, a knowledge repository is maintained accessible via Intranet (LAN), which has educational content like Coursera, edX, IBM Skill build, etc. The Institution is also connected to the National Knowledge Network for knowledge sharing and research collaboration.

We provide e-mail and collaboration services through Google Apps (GSuite) for all the students, and alumni, for faculties & staff email services are managed via MS exchange. All users have a single-window login /access facility managed via Active Directory.

PDEU being an educational organization has collaborated with Microsoft, for the user license of MS-O365 (office-365), online lectures and webinars are conducted by faculties with an interactive teaching-learning

environment via MS-Teams a product of MS-O365.

Well-equipped with licensed software for academic and administrative needs. As a best practice, we support optimum utilization of open source software - centos, php, mysql, mangodb, NodeJs, ReactJs, Android studio to name a few.

Live webcasts of Institutional events and ceremonies, PDEU promotional webinars, Online talk/chat shows are conducted and successfully managed to ensure the digital presence of PDEU.

Pandit Deendayal Energy University introduced the “Earn While You Learn” scheme wherein our students are employed on a part-time basis as interns for software development, web designing, content creation, data analytics, and machine learning projects, those are developed. Deployed and managed by an in-house IT team.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.3.3 Student - Computer ratio (Data for the latest completed academic year)

Response: 4:1

File Description	Document
Upload any additional information	View Document
Student – computer ratio	View Document

4.3.4 Available bandwidth of internet connection in the Institution (Leased line)

Response: A. ?1 GBPS

File Description	Document
Upload any additional information	View Document
Details of available bandwidth of internet connection in the Institution	View Document

4.3.5 Institution has the following Facilities for e-content development

1. Media centre
2. Audio visual centre
3. Lecture Capturing System(LCS)
4. Mixing equipments and softwares for editing

Response: A. All of the above

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Links of photographs	View Document

4.4 Maintenance of Campus Infrastructure

4.4.1 Average percentage expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component during the last five years

Response: 66.05

4.4.1.1 Expenditure incurred on maintenance of infrastructure (physical facilities and academic support facilities) excluding salary component year-wise during the last five years (INR in lakhs)

2020-21	2019-20	2018-19	2017-18	2016-17
3568.52	5625.51	4633.11	3912.19	3514.06

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Audited statements of accounts	View Document

4.4.2 There are established systems and procedures for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc.

Response:

The **Campus Management Department (CMD)** maintains the university's properties such as buildings, classrooms, laboratories, gardens, auditorium, cafeteria, hostels, sports facilities, gymnasiums, landscaping, health center, etc. The department has qualified and skilled manpower for civil work, electric work, plumbing, HVAC, etc. The Campus Management Department is headed by the **Chief Campus Manager (CCM)** who coordinates the overall maintenance of the university buildings and manages the maintenance funds allocated. The CMD maintains records of the physical infrastructure of the university and processes the allocation of space on the university campus.

The infrastructure facilities such as buildings, classrooms, laboratories, buildings, hostels, cafeteria, hostels, etc. are cleaned daily by **130 housekeeping staff** under the supervision of the CMD. **Housekeeping services are outsourced and available on campus 24 x 7.** The University has laid down guidelines and structures for the maintenance of the various types of equipment. For department-specific equipment, maintenance/repair is undertaken by the concerned laboratory in charge as per the procedure/s laid down by the University from time to time. Major laboratory equipment are under Annual Maintenance Contract (AMC) for their regular preventive and corrective maintenance.

Campus Surveillance Cameras, CCTVs, LAN, other security equipment are maintained through Central Information Technology (CIT) department and are maintained through an annual maintenance contract (AMC). **Teaching aids such as LCD Projectors, PA Systems, Laptops, Desktops, Printers, Wi-Fi, etc. are maintained on campus by CIT staff.** Fire Fighting equipment is installed in all facilities including building corridors, class-room, labs, hostels, offices, etc., and is regularly inspected and maintained by CMD. The gardens, tree plantations, landscaping, etc. are maintained by the garden staff under the supervision of the CMD. The maintenance of equipment for water pumping plants, sewage, HVAC, etc. is undertaken as per their preventive maintenance schedules, guidelines by the equipment supplier.

The Department of Physical Education and Sports provides modern sports and gymnasium facilities to all students, teaching and non-teaching staff, and their families free of cost and maintains the infrastructure with the help of the Engineering section and GAD. A central facility housed at the Sports Complex has a well-maintained gymnasium with modern equipment, table tennis, badminton courts, and yoga and aerobics facilities

Sports/NCC/NSS is a compulsory course for undergraduate students at PDEU. Students are encouraged students to play various games and coaching is provided to them. Further 03 well-maintained gymnasia with modern equipment; tennis, badminton, and basketball courts; cricket, volleyball, kabaddi, kho-kho ground; yoga and performing arts room, etc. The modern sports and gymnasium facilities are well maintained by the Sports Committee under the Office of Student Activities Involvement and Leadership (OSAIL) of PDPU as per the guidelines laid down by the university. University has established Procedures & Policies for library recourse utilization by students, faculty, and staff which include policies for membership, book issue, renewal, etc.

File Description	Document
Paste link for additional information	View Document

Criterion 5 - Student Support and Progression

5.1 Student Support

5.1.1 Average percentage of students benefited by scholarships and freeships provided by the institution, Government and non-government agencies (NGOs) during the last five years (other than the students receiving scholarships under the government schemes for reserved categories).

Response: 14.15

5.1.1.1 Number of students benefited by scholarships and free ships provided by the institution, Government and non-government bodies, industries, individuals, philanthropists during the last five years (other than students receiving scholarships under the government schemes for reserved categories)

2020-21	2019-20	2018-19	2017-18	2016-17
845	787	945	655	434

File Description	Document
Upload self attested letter with the list of students sanctioned scholarship	View Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.1.2 Average percentage of students benefited by career counseling and guidance for competitive examinations as offered by the Institution during the last five years.

Response: 96.75

5.1.2.1 Number of students benefitted by guidance for competitive examinations and career counselling offered by the institution year wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
6012	5587	5072	4457	3779

File Description	Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.1.3 Following Capacity development and skills enhancement activities are organised for improving students capability 1. Soft skills 2. Language and communication skills 3. Life skills (Yoga, physical fitness, health and hygiene) 4. Awareness of trends in technology

Response: A. All of the above

File Description	Document
Institutional data in prescribed format	View Document
Link to Institutional website	View Document
Link for additional information	View Document

5.1.4 The institution adopts the following for redressal of student grievances including sexual harassment and ragging cases 1. Implementation of guidelines of statutory/regulatory bodies 2. Organisation wide awareness and undertakings on policies with zero tolerance 3. Mechanisms for submission of online/offline students' grievances 4. Timely redressal of the grievances through appropriate committees

Response: A. All of the above

File Description	Document
Upload any additional information	View Document
Minutes of the meetings of student redressal committee, prevention of sexual harassment committee and Anti Ragging committee	View Document
Details of student grievances including sexual harassment and ragging cases	View Document
Link for additional information	View Document

5.2 Student Progression

5.2.1 Average percentage of students qualifying in state/national/ international level examinations during the last five years (eg: IIT-JAM/CLAT/ NET/SLET/GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/State government examinations, etc.)

Response: 100

5.2.1.1 Number of students qualifying in state/ national/ international level examinations (eg:

IIT/JAM/ NET/ SLET/ GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/ State government examinations, etc.)) year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
139	74	41	19	35

5.2.1.2 Number of students appearing in state/ national/ international level examinations (eg: IIT/JAM/ NET / SLET/ GATE/ GMAT/CAT,GRE/ TOEFL/ Civil Services/ State government examinations) year-wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
139	74	41	19	35

File Description	Document
Upload supporting data for the same	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.2.2 Average percentage of placement of outgoing students during the last five years**Response:** 39.98**5.2.2.1 Number of outgoing students placed year - wise during the last five years.**

2020-21	2019-20	2018-19	2017-18	2016-17
530	574	448	395	320

File Description	Document
Upload any additional information	View Document
Self attested list of students placed	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.2.3 Percentage of student progression to higher education (previous graduating batch).**Response:** 30.37**5.2.3.1 Number of outgoing student progressing to higher education.**

Response: 434

File Description	Document
Upload supporting data for student/alumni	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.3 Student Participation and Activities

5.3.1 Number of awards / medals won by students for outstanding performance in sports / cultural activities at inter-university / state / national / international events (award for a team event should be counted as one) during the last five years.

Response: 228

5.3.1.1 Number of awards/medals won by students for outstanding performance in sports / cultural activities at inter-university / state / national / international events (award for a team event should be counted as one) year - wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
30	65	51	41	41

File Description	Document
Institutional data in prescribed format	View Document
e-copies of award letters and certificates	View Document
Link for additional information	View Document

5.3.2 Presence of Student Council and its activities for institutional development and student welfare.**Response:**

Pandit Deendayal Energy University (PDEU), formerly known as Pandit Deendayal Petroleum University, maintains a pristine environment blended with modern technologies to enhance the spirit and energy level of all learners and for development of life skills to encourage leadership and inspire students to optimize their learning efforts. All the extra-curricular and many co-curricular activities take place at the Office of

Student Involvement and Leadership (OSAIL), which works with the objective of providing all the students an opportunity to develop themselves in areas of their interest thereby developing leadership qualities. The activities at the OSAIL are majorly driven by Student Clubs and Student Chapters of Professional Societies.

The OSAIL categorizes all student activities into

- Social and Cultural
- Science and Technology
- Sports
- Student Chapters

A student committee is formed where President, Vice Presidents, Member Secretary, and Treasurer positions are nominated for each of the said categories and a faculty in charge is assigned. To augment the students' educational experience at PDEU, OSAIL encourages bounteous and innumerable opportunities for students to explore and enhance creative and managerial skills. Under the mentorship of OSAIL, the students ideate and execute events, and run their organizations as an autonomous body. This keeps campus buzzing with learning outside the classroom. The students learn teamwork, financial planning management, time management, marketing promotions, communication, negotiation skills, etc.

OSAIL works to help students to explore, nurture and exhibit their passion and develop life leadership skills. Thus, in such a short time span of the University's existence, its students have organized a number of events in the field of art, culture, language, media, sports, science technology etc. In the year 2019-20 there was a total of 70 student chapters and clubs, which conducted around 225 Intra-University, Inter-University, and National level events. The students' organizations in PDPU are broadly categorized as Social-Cultural, Science Technical and Sports. The activities at the OSAIL are largely driven by Student Clubs, Student Chapters of professional societies and each focuses on different aspects of art, culture or science and technology – as well as theatre, film archive, robotics, coding, quizzing, astronomy, culinary skills and photography. Many Clubs host exciting program, lectures, classes, workshops and different activities for students throughout the year. From theatrical plays and musical performances to robowars and guest lectures, students can find a breathtaking range of university-sponsored activities that will expand student's world view and enrich their lives. With the support and mentoring of the office, students organize various inter-college and intra college sports, culture and technical events. FLARE (Annual Cultural Festival), Tesseract (Annual Technical festival), and Petrocup (Annual Sports festival) are gaining popularity among students of other reputed institutes and received good participation during inter-college events. Students are present as a member in various academic bodies such IQAC and Board of Studies of every department. Students are also present in various administrative committees such as the Anti-ragging committee, Canteen committee, Women's cell, etc. In all such academic and administrative bodies/committees, students provide their valuable contributions to improve academic and campus life.

Achievements of OSAIL:

1) **228 students** have won **awards and medals** in sports, cultural activities at **inter-university, state and national level**.

- 2) More than **800 sports and cultural events and competitions** were organised over the last five years.
- 3) More than **250 technical events** are organised over last five years.

File Description	Document
Upload any additional information	View Document
Link for additional information	View Document

5.3.3 Average number of sports and cultural events / competitions organised by the institution per year

Response: 162.2

5.3.3.1 Number of sports and cultural events / competitions organised by the institution year - wise during the last five years.

2020-21	2019-20	2018-19	2017-18	2016-17
179	196	108	149	179

File Description	Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.4 Alumni Engagement

5.4.1 The Alumni Association / Chapters (registered and functional) contributes significantly to the development of the institution through financial and other support services.

Response:

The Pandit Deendayal Energy University (PDEU), formerly known as Pandit Deendayal Petroleum University, has very illustrious alumni across the globe, including leading industrialists to entrepreneurs. The university has taken varied initiatives to stay connected with its wide alumni base since graduation of the first batch. Though the university has very strong association with its alumni, the “PDEU Alumni Association” was formed in year 2021. The structure, regulation and norms of the association have been designed and approved in the same year.

PDEU Alumni are contributing to the university in academics, research and student development.

1. Alumni have contributed immensely in curriculum review and development as members of the Board of Studies. This helps in keep the curriculum and teaching pedagogies aligned with the standards and requirements of the industry.
2. Our alumni are actively engaged in graduate progression by offering them mentorship for placement preparation and professional skill development through series of lectures and training programs. More than 50 lectures are interactive session are conducted by alumni for capacity building of our students.
3. Our alumni are offering their services or admission process at PG programs as a member of selection committee.
4. Many of our alumni have progressed for higher studies at reputed foreign universities, and they are assisting our students to get admission into these universities.
5. PDEU Alumni are providing mentoring services to the students of the university by holding one to one interaction with the students, alumni talk, interactive sessions, etc. More than 30 mentoring sessions have been conducted by alumni.
6. They have become influential in making the students understand the industry-institute gaps, career opportunities, skill set required by industries for placement and also guiding students to plan and shapeup their own career in right direction.
7. Large number of alumni are involved in supporting various activities through non-financial means. Departmental libraries are being enriched by books and computers donated by Alumni.

Various alumni meets are organized every year. The alumni are updated with university developments by sharing university newsletters and annual reports.

File Description	Document
Any additional information	View Document
Link for additional information	View Document

5.4.2 Alumni contribution during the last five years (INR in Lakhs)

Response: B. 50 Lakhs - 100 Lakhs

File Description	Document
Any additional information	View Document
Link for any additional information	View Document

Criterion 6 - Governance, Leadership and Management

6.1 Institutional Vision and Leadership

6.1.1 The institution has a clearly stated vision and mission which are reflected in its academic and administrative governance.

Response:

Vision:

To emerge as a world class **Institution of Excellence in Energy education, Research and Innovation** which will prepare and sensitize the youth and ultimately the society for radical yet sustainable societal transformation.

Mission:

- Undertake a unique obligation for **Education in Energy**, Engineering, Management and Liberal Arts with special responsibilities in domain specific aspects of Energy & Infrastructure.
- Seek to nurture students of extraordinary motivation and ability, and prepare them for **life-long learning and leadership** in an increasingly knowledge driven world.
- Envisage to **establish institutes of excellence in education, competitive edge in research** and real time relevance with futuristic thrusts in offering of programmes and undertaking of activities and projects.

Salient features of PDEU's Academic & Administrative Governance:

- Having a vision minded drive in energy education, research and innovation, **PDEU was translated to PDEU**, an attestation to its all-round contribution in all frontier areas of energy.
- PDEU is the *nodal centre* for Gujarat Government and DST, GoI for Innovation and Incubation Drive (15 Crore received to spearhead this effort).
- PDEU is Transforming into a *hub for manufacturing skillset* (over 35 crores invested into such initiatives); PM inaugurated the launch of these schemes in November 2020.
- PDEU is pioneering a new initiative switching over from *energy generation to energy storage* (100kWh is a pilot project combining Solar-Wind-Storage and EV charging).

Quantum of PDEU's Mission accomplished:

- Energy education is imparted in every stream, Sciences, Engineering, Management and Liberal arts to achieve Graduate attributes.
- Our diligent efforts in education are attested by the Students securing Top rank in GATE 2022 (AIR 1st, 4th 6th and 7th Rank.)
- Fast learners have distinguished themselves in their Global competence.
- In our Mission to establish institutes of excellence, we have launched
- 3 major centres of excellence (DCS facility, iACE, Advanced Manufacturing), 140 Crores invested in the assessment period.
- 3 Centres of excellence are in the nascent stage (Carbon dioxide capture/storage/water desalination/Critical thinking);

- PDEU has nearly doubled its capacity building to address the nation's needs.
- PDEU actively participates in FICCI, CII, Assocham, AIU, SAARC, Indo-African and Indo-European forums for globalization.
- PDEU is co-opted by MNRE, NITI Ayog, GoG, Embassies of USA, UK in Energy advocacy and policy decision.

Resource mobilization for the mission:

- The generous support of up to 89.05 Crores received from **Industry** Reliance Foundation, SHELL energy, British Petroleum, Suzlon, for endowment/ infrastructure/Chair Professorship/research projects.
- Domain-Specific funding up to 45 Crore received from the **Government of Gujarat** and the **Government of India**.
- Challenging projects funded by agencies above >20 Crore received for **extramural projects**.
- Recruited more than **70 new faculty members** mostly with abroad experience and from IITs, in the last two years.

A carefully designed Strategic plan for 2015-20 and a Visionary projection for 2021-25 are in place:

- The last 5 yr plan is well executed and a clear financial resource is laid for the next five-year plan. A robust resource mechanism is in place.
- Finance Committee rigorously evaluates the budget plan and implementation across the School.
- The Board of Governors has endorsed the establishment of the Translational Research Centre (TREC) for effective translation of research.

File Description	Document
Any additional information	View Document
Link for additional information	View Document

6.1.2 The effective leadership is reflected in various institutional practices such as decentralization and participative management.

Response:

Management

- **The Board of Governors** headed by **Dr. Mukesh Ambani** provides effective leadership to implement the Vision and Mission of the University.
- The BoG along with the Government of Gujarat constitutes a Standing Committee to guide, oversee and support the University in policy implementation.
- **The Standing committee** was headed by Shri Rajagopalan IAS Retd (Former Chief Secy. Of Government of Gujarat) between 2016 - June 2021.
- **Dr Has Mukh Adhia IAS retd.** (Former Principal secy. of GoG and former Union Finance & Revenue Secy, of GoI until 2018) recently assumed the responsibility of Chairman, Standing

committee, since Feb 2022.

Administration:

- **The Director General, Professor S. Sundar Manoharan Ph.D. (IISc)** provides academic and administrative leadership to the university in its pursuit for excellence.
- The Director General along with the host of Directors and Deans ensures effective implementation of the academic and research mandate.
- They keep in pace with the students, parents, employers and industry and provide the right ambience for the students' progression.
- **Professor Tarun Shah, the Registrar** ensures the rules and regulations are strictly adhered and the code of conduct is implemented in all its operational procedures.
- **Controller of Examination** ensures smooth and confidential functioning of the examination process.

Statutory bodies:

- **Academic Council** endorses the curriculum design, mid-course corrections, and quality measures. Approval of new courses, and programs are critically reviewed based on BoS minutes and recommendations and forwards its approval for the consideration of BoG.
- **The Finance Committee** ensures effective planning and implementation of Budgeting, monitoring Recurring expenses, ensures resources requirements or CAPEX, Student scholarships, International engagements for students and staff, Audits and Projections to various stakeholders.

Decentralized Academic leadership:

- **Director, Deans, Head of the Department** meet with respective faculty, students, Alumni, Business and Industry, R&D organizations and other stakeholders.
- The **office of the Director of Academic Affairs** ensures the Academic calendar, curriculum design, Teaching-learning process, Examination process, Quality control measures through IQAC, and 360-degree feedback evaluation process.
- The **Office of Dean R & D** ensures meticulous management of Research projects/publications/patents/ consultancy/ entrepreneurship.
- The **Office of the Dean of Student Affairs** ensures the engagement of students in professional and extracurricular activities and in leadership-building activities.
- The IQAC scouts all the quality control measures in academic, research and audit activities.

Participative Leadership:

Women leadership:

- PDEU has ~25% of women leadership in academic and administrative activities.
- PDEU women students are actively involved in academic, research and cultural activities.

Student Leadership:

- Co-curricular events like Technical Seminar, Workshops, and Conclaves are handled by the subject related Faculty Members, Admin Staff and Students.

- Extra-curricular activities are planned and managed by the Faculty, Staff, and Students.
- Students involve in Placement drive and connect with the Industry for core placements.
- Students actively provide leadership in all three festivals: Sports, Cultural and Technical fest.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.2 Strategy Development and Deployment

6.2.1 The institutional Strategic plan is effectively deployed.

Response:

A GLIMPSE OF INITIATIVES: 2015-2020

- The institute positioned itself to launch several initiatives to bring visibility in academics, research, and Faculty empowerment.
- Setting our eye on the completion of 10 years in the year 2016, Accreditation, Ranking, and capacity building was the foremost.

Accreditation:

- The University went through the NAAC accreditation first cycle in the year 2016. To this end, all academic course revisions were done, research publications and project funding were accessed and monitored.
- **Outcome: University has been assessed and accredited with an 'A' grade/CGPA of 3.39/4.0 by NAAC in 2016.**

Centers of Excellence (CoE):

- As per the strategic plan, We have established CoE in Automobile Engineering, Geothermal Energy, Solar Energy, Biofuel and Bioenergy.
- Drilling, Cementing, and Stimulation Research Centre (Funded by Govt. of Gujarat 2017)
- International Automobile Center of Excellence(2019-20): For hands-on experience for students in the auto industry, 17 certificates PG programs will be launched by our trained faculty. (With Maruti Suzuki and GoG)
- Innovation and Incubation Centre(IIC 2016-17): To encourage technology Incubation and innovation, IIC is set up. (DST Gujarat and DST, GoI)

Capacity Building:

- **Academic/Research Block(2020):** To meet new technological demands, a 40 Cr facility is dedicated to translational research facilities involving nine verticals of Industry-4.0.

- **New Professional Programmes(2016-17):** B.Tech. in Computer Engineering/Information and Communication Technology /ECE, / Automobile Engineering are envisaged.
- **Hostels:** To develop hostel facilities for scalability (2017-18).
- **Sports Complex(2019):** To develop a sports complex with the support of Govt.
- **Globalization:**
 - Semester Study Abroad
 - Direct Admission of Students Abroad scheme
 - AIESEC students program

Other Major Outcomes-Strategic Plan of 2015-20

- **50MW Manufacturing Line (15 Crores invested) for Mono-Crystalline Cell to Panel** integration project kick-started.
- **INDO-EU Bilateral Project(14 crore funding):** To develop high-recovery, low-cost water treatment systems for saline groundwater and wastewaters.
- **Accreditation:** Awarded NAAC "A" (A+on new scale) grade and CGPA of 3.39/4.0 in 2016. NBA Accreditation for 3 years was awarded to UG Mechanical and Petroleum Engg. in October 2019 and July 2021 respectively.
- **IPR Cell:** More than 143 patents granted/ Over 250 filed and 200 published.
- **Sports Complex:** As a first Phase - Developed a synthetic 400-meter track and six gymnasiums.
- Developed State of Art Laboratories, Invited foreign universities faculties, Instituted chair professorship and professor emeritus
- Established skill development centers, Augmented the library resources, Promoted Internationalization of Education

Strategic Plan: 2021-2025

Transformation Education:

- **Curriculum Industry 4.0:** More than 40% credits for outcome-based education.
- **I 40 curriculum:** Mixed reality, Industry IoT, Cyber-Physical systems, “Next Generation Laboratory”.
- **MOOC Courses:** Presently through Swayam/Coursera. 15% of credits/semester for online courses.
- To ascertain complete compliance of OBE in teaching, learning and evaluation.

Translational Research (Translational Research Centre, TREC-PDEU):

TREC is an exclusive facility to realize all the verticals of Industry 4.0. We wish to pursue :

- **Additive Manufacturing - ATMANIRBHAR BHARAT initiative.**
- **Cyber-Physical Systems: Industrial IoT**
- **Big-Data-analytics, Data Mining, Cyber security.**
- **Solar PV Product Line: 50 MW skill India Initiative for Energy transition.**
- **Next Generation Laboratory: Machine learning, Virtual reality, mixed reality.**
- **Energy Storage: For grid support employing redox battery.**
- **Urja Satellite project.**

- Disruptive technologies and Frugal innovations.

File Description	Document
Any additional information	View Document
Strategic Plan and deployment documents on the website	View Document
Link for Additional Information	View Document

6.2.2 The functioning of the institutional bodies is effective and efficient as visible from policies, administrative setup, appointment, service rules and procedures, etc.

Response:

1) Administrative and Academic bodies as per UGC norms: Regulations in its Part-A &B, besides also in the University Act.

- The University has the following authorities as mentioned in its Act and Regulations: The university BoG encompasses a unique preposition of stakeholders from the **Academia, Government and Industry**. In less than 15 years of its existence, it has made a mark in producing vibrant students as engineers, excellent candidates for social transformation and as ambassadors for the nation's progress.
- **Board of Governors:** Gives an exemplary touch to governance in bringing the spirit of excellence into the mission mode of the university. The progression of the institution is aimed to create a strong-willed, clear-minded and highly skilled next generation,
- **Standing Committee:** is a unique blend of Government and academia partnership since the parentage of PDEU is from Gujarat Energy Research Management Institute, Brings provides the synergy for Academia- Government-Industry collaboration and helps in capacity-building measures.
- **Academic Council:** Ensures a diligent curriculum design and the teaching-learning process.
- **Finance Committee:** Is forthright in providing all ensuring mechanisms for the students, faculty, staff and all other stakeholders.

2) Academic Bodies:

In Part-B of the Regulations following academic bodies of the University are detailed along with its objectives, powers and functions, and other procedural aspects:

- Faculty of Studies
- Board of Studies

3) Officers of the University: Following are the officers of the University as mentioned in the Act and Regulations:

1. President
2. Director-General
3. Registrar
4. Directors of schools: Provide effective leadership to implement academic and research goals.
5. Dean of schools: ensure effective and smooth functioning of the teaching-learning process.
6. Dean of Research: Activities captured by RIMS portal.
7. Director of Academic Affairs: Curriculum design and effective implementation of OBE.
8. Dean of Students Affairs: All 32 cell groups ensure co-curricular and extracurricular activities.
9. Office of International relations: Ensure internalization and Globalization.
10. Finance Officer.: Robust budget and implementation.
11. Controller of examinations: Effective evaluation process.
12. Head Internal Quality assurance cell.

The powers and functions, tenure, appointment procedure for all these officials, have been specified in Section C of the University Regulations.

4) The Regulations also provide for the powers and functions of the faculty/Course Instructor.

5) The well-defined policies are in place for

- Student Admissions, Student Discipline, Scholarships
- Hostel life.
- Conduct of Examinations, and
- Award of Degrees & Diplomas are provided in the University Regulations and also through other notifications from time to time as a supplement to it.

6) For administrative management, the following components are covered in the University Regulations:

1. Infrastructure Development: Building works committee.
2. Procurement Management: Purchase committee
3. Contract Management: Housekeeping, security.
4. Finance Management: Finance committee, auditors-internal and external.
5. HR Management: CHRO, HR Team, School Admin team.

For all the above administrative affairs, respective committees are specified along with their powers and functions and other procedural aspects of their functioning.

7) General Service Rules for the employees carry the contents on Performance Appraisal, Increment, Professional Development & Career Allowance, Key Performance areas, Code of Conduct, and a few others.

File Description	Document
Any additional information	View Document
Link to Organogram of the University webpage	View Document
Link for Additional Information	View Document

6.2.3 Institution Implements e-governance covering following areas of operation

1. Administration
2. Finance and Accounts
3. Student Admission and Support
4. Examination

Response: A. All of the above

File Description	Document
Screen shots of user interfaces	View Document
ERP (Enterprise Resource Planning) Document	View Document
Details of implementation of e-governance in areas of operation, Administration etc (Data Template)	View Document
Link for additional information	View Document

6.3 Faculty Empowerment Strategies

6.3.1 The institution has a performance appraisal system, promotional avenues and effective welfare measures for teaching and non-teaching staff .

Response:

Appraisal:

- The University has a transparent and meritocratic online appraisal system for faculty members and staff.
- Each year the goal sheets are finalized after a meticulous process which is the basis for the appraisal framework.
- After self-appraisal, it is reviewed by the Reporting officer and Reviewing officer respectively.
- The faculty are broadly assessed on their Teaching, Research, Administrative Activities, and Extended Activities and staff is broadly on their deliverables and additional responsibilities assigned.

Link of Faculty & Staff Appraisal System: <http://apas.pdpu.ac.in/apas>

Promotional Avenues:

- Faculty members can apply for **Cadre upgradation and for Leadership roles** and the system gives a fair opportunity, the University accepts their applications against various posts and positions in reference to the advertisement published.
- The eligibility for the same is based on 1. Total Post Ph.D. Experience, 2. Service Record, 3. Tenure at the University
- The faculty members are assessed on Past work done by them as well as the Future Plan of the Faculty.
- **Non-Techning employees participate in all academic and non-academic activities** along with faculty members.
- **Technical staff in laboratories** equally participate in learning outcomes as per the OBE process.
- **The technical staff gives talks to Faculty** and other peers on learning outcomes and in new learning methodologies devised by them.

Welfare measures:

- Faculty can avail of **Cumulative Professional Development Allowance worth INR 1 Lac per year** that can be accumulated for a period of 3 years, for Participation in International/ National Conferences, Payment of membership fees of various professional bodies, subscription for Journals.
- Implementation of the **7th Pay Structure** for the regular employees of the University.
- The employees are provided the benefits of **Gratuity and Leave Encashment**.
- **Maternity Leave** (26 weeks), and Paternity Leave (10 days) with Creche facility for children of employees of the University.
- Staff can avail of **Training Expenditure** worth Rs. 15,000 per year
- The Employees are provided with **Leave for professional endeavors** outside the University.
- The Employees are also provided **Medical Insurance** worth INR. 5,00,000 per year along with **Accidental Insurance worth INR 20,00,000. Corona Kawacch worth Rs.5,00,000** is provided over and above the Medical Insurance.
- For the education of the children of the employees, **Children Education Allowance** for regular employees.
- **House Rental Concession** is provided over and above **HRA for certain employees staying within a 3 km radius** of the University.
- **On-campus accessibility of General Physician, Gynaecologist, Psychiatrist, Medical Store, Sanitary Pad Vending Machines, Ambulance, Gymnasium, Sports Facilities, Stationary and facilities for recreational activities like sports**
- **Transportation Facilities** and on-campus **facilities of Canteen and cafes at subsidized rates** for employees are offered by the university.
- For the overall growth of the employees, relevant training with effective training design is organized post understanding the Training Needs of all Faculty and Staff.
- The HR team is responsible for the development and coordination of the successful execution of Training Programs (both in and out of campus) by sensitizing employees and reporting managers to ensure their adequate participation.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.3.2 Average percentage of teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the last five years.

Response: 100

6.3.2.1 Number of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies year wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
257	234	209	174	182

File Description	Document
Details of teachers provided with financial support to attend conferences, workshops etc. during the last five years (Data Template)	View Document
Link for Additional Information	View Document

6.3.3 Average number of professional development / administrative training Programmes organized by the institution for teaching and non-teaching staff during the last five years.

Response: 85.4

6.3.3.1 Total number of professional development /administrative training Programmes organized by the institution for teaching and non teaching staff year-wise during the last five years

2020-21	2019-20	2018-19	2017-18	2016-17
97	85	94	78	73

File Description	Document
Details of professional development / administrative training Programmes organized by the University for teaching and non teaching staff (Data Template)	View Document
Any additional information	View Document
Link for Additional Information	View Document

6.3.4 Average percentage of teachers undergoing online/ face-to-face Faculty Development Programmes (FDP) during the last five years (Professional Development Programmes, Orientation / Induction Programmes, Refresher Course, Short Term Course).

Response: 41.66

6.3.4.1 Total number of teachers attending professional development Programmes, viz., Orientation Programme, Refresher Course, Short Term Course, Faculty Development Programmes year wise during last five years

2020-21	2019-20	2018-19	2017-18	2016-17
196	130	90	40	19

File Description	Document
IQAC report summary	View Document
Details of teachers attending professional development Programmes during the last five years (Data Template)	View Document
Link for Additional Information	View Document

6.4 Financial Management and Resource Mobilization

6.4.1 Institutional strategies for mobilisation of funds and the optimal utilisation of resources

Response:

Resource Mobilization:

PDEU being a self-financed university follows financial prudence based on transparency, ethics, and integrity and has adopted best practices from both public universities and corporate governance under the framework of the PDP Act, 2007. The finance committee, a statutory body of the University, oversees the financial planning as well as mobilization and utilization of the funds of the University.

Corpus Funds (Rs.193 Crores)

- PDEU has been established by GERMI through PDPU Act 2007; the Act of the Gujarat Legislature on 04/04/2007. GERMI as a promoter for the university made the initial capital expenditure and provided the initial capital.
- Reliance Foundation has committed to contribute Rs. 150 crores over a period of ten years through GERMI for PDPU, as an endowment fund that will go towards further strengthening PDPU and enable it in taking on additional activities. Since 2016-17, Reliance Foundation has contributed an aggregate of Rs.82.50 crores towards their commitment to PDPU.

Scholarship Funds (Rs.25 Crores)

- PDEU have presidential merit-based and merit-cum-means scholarship among the students. The total scholarship fund from corpus as of 31/03/2021 is Rs.13.47 Crores and Excess NRI Fees amounts to Rs.11.79 Crores.

Revenue from Operations (Rs.127 Crores)

- The university's professional courses fees are governed by Fees Regulatory Committee. Hence the fees are based on the cost-plus development expense model.
- The annual revenues from fees amount to Rs.116.24 Crores. This primarily contributes to the Academic Research and maintenance expenses.
- University is actively working on consultancy-based projects and the internationalization of student-related courses to improve the revenue streams.
- The University is mobilizing the resources also through Management Development Programmes, Consulting, and Testing Services.

Research and Other Funding (Rs. 19.39 Crores)

- The Faculties of the University are encouraged through our research initiative programs to mobilize resources for research activities and strengthen the University facilities by applying to various funding agencies such as DST, UGC, GUJCOST, SERB, ICSSR, etc.
- PDEU has received research grants amounting to Rs.19.39 Crores for 41 Projects in the last 5 years.
- For this, the university has the following recognition:
 - Scientific and Industrial Research Organization (SIRO) by the Government of India and the Ministry of Science and Technology.
 - Scientific Research Institution under section 35(1)(ii) by Ministry of Finance and Government of India.
 - Exemption under section 80G as per Income-tax Act.

Optimum Utilization:

The university has a well-defined mechanism to monitor the effective and efficient utilization of available financial resources for upscaling the academic processes and also for infrastructure development. Following are the key processes:

- Preparing annual budgets based on a thorough analysis of needs that conforms to the University's

budgetary guidelines and processes. Adequate funds are allocated for effective teaching-learning practices

- Expenditure under different heads is made as per budget provisions approved by the Finance Committee and the Board of Management.
- Performing periodic internal audits to ensure continued compliance with the University's financial policies.
- The university has various committees to ensure optimum utilization of funds which includes the procurement committee for capital procurements, the building works committee for infrastructure development, and the purchase committee for all recurring purchases.

File Description	Document
Link for Additional Information	View Document

6.4.2 Funds / Grants received from government bodies during the last five years for development and maintenance of infrastructure (not covered under Criteria III and V) (INR in Lakhs).

Response: 3125.55

6.4.2.1 Total Funds / Grants received from government bodies for development and maintenance of infrastructure (not covered under Criteria III and V) year wise during the last five years (INR in Lakhs).

2020-21	2019-20	2018-19	2017-18	2016-17
1000	1108.17	17.38	600	400

File Description	Document
Details of Funds / Grants received from government bodies during the last five years (Data Template)	View Document
Annual statements of accounts	View Document
Link for Additional Information	View Document

6.4.3 Funds / Grants received from non-government bodies, individuals, philanthropists during the last five years (not covered in Criterion III and V) (INR in Lakhs)

Response: 8325

6.4.3.1 Total Grants received from non-government bodies, individuals, Philanthropers year wise during the last five years (INR in Lakhs)

2020-21	2019-20	2018-19	2017-18	2016-17
1000	1000	2250	1500	2575

File Description	Document
Institutional data in prescribed format	View Document
Annual statements of accounts	View Document
Link for Additional Information	View Document

6.4.4 Institution conducts internal and external financial audits regularly

Response:

Statutory Auditor:

- The Finance Committee has appointed M/s /s P. R. Shah & Associates as statutory auditor of the university. M/s /s P. R. Shah & Associates is a renowned CA firm with experience of more than 40 years in the field of statutory audit and Taxation.
- The audit takes into cognizance the various verticals of operation and the legislative framework the university operates. The audit program is based on the auditor's judgment and assessment of risk and encompasses checks to verify that internal controls are commensurate with the size of the institution, the distribution of resources across verticals, the nature of its activities, and in addition to its own examination, the external auditor takes into account references made by the Finance Committee.
- The consolidated annual accounts, aggregating all the school accounts, of the university consisting of the Income and Expenditure Account and the Balance Sheet will be audited by the auditors appointed by the management and the same will be placed before the Finance Committee.

Internal Auditor:

- The Finance Committee has appointed Manubhai and Shah LLP as internal auditors of the University. Manubhai and Shah LLP is a renowned CA firm with experience of more than 50 years in the field of internal audit. They conduct periodical internal and concurrent audits and report the findings to the Finance Committee.
- Interim observations are forwarded to Finance Team for corrective actions and implementation. The university finance office replies to the queries of the internal audit report and updates the processes based on recommendations made by the internal audit department.
- The scope of the internal audit is as under:
 - Verification of adequacy and accounting treatment of various sources of operating revenue and expenditure.
 - The internal Audit Team conducts 100% vouching and checks all the transactions against the set procedures and guidelines under the university policies and ensures legal compliance of records.

- Review of accounting policies adopted by the University and their compliance.
- Verification of capital purchases and approval, purchase of material of revenue in nature, and various services received under contract/agreements.
- Verification of payment of dues under TDS / TCS / GST/ PF /ESICS and other statutory compliance.

Further, the University has established the practice of Pre-audit by an independent CA firm for all transactions above Rs. 10 Lakhs.

The university also has a full-fledged Accounts department headed by the Finance Officer. The financial statements are prepared in accordance with Generally Accepted Accounting Principles.

The financials of the University and audit reports are placed on the University Website.

File Description	Document
Link for Additional Information	View Document

6.5 Internal Quality Assurance System

6.5.1 Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing the quality assurance strategies and processes by constantly reviewing the teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals.

Response:

Internal Quality Assurance Cell (IQAC) channelizes and regulates the efforts and monitoring of Quality Assurance (QA) and Quality Enhancement (QE) activities in curriculum design, teaching-learning process and research.

Improving Teaching-Learning Process:

- The Outcome-based Education (OBE) and Course Outcomes (COs) are prepared following blooms taxonomy for all programs at the university (**Over 1250 subjects were revised** and appropriated for Industry 4.0 demands)
- Choice Based Credit System (CBCS) intensified with the introduction of additional **>100 core elective courses**.
- Mid and End semester review from the students helps **mid-course** corrections to be incorporated.
- Course file preparation for all courses is reviewed by the HODs every month.
- A balance between experiential learning (30%) and classroom-based learning is standardized.
- Special emphasis on PO3: Solving complex engineering problems is achieved through tutorials, industry projects, comprehensive projects and through industry-sponsored Hackathons.
- Fast learners are encouraged to avail **seed funding for student research projects** from the second year onwards.
- Students are encouraged to file patents for their innovative ideas.
- Benchmarking each program-specific outcome by mapping CO with PO to assess the attainment of

graduate attributes

Structures & methodologies of operations

- In-house Data Information Centre (DIC) ensures centralized data acquisition, data analytics and data management; to effectively support benchmarking of various activities to monitor the student, research scholars and faculty progression.
- An effective annual self-appraisal system for faculty and staff facilitates to set goals for the teaching-learning process and research.
- IQAC takes the major lead in sensitizing faculty and students about academic bank of credits (ABC) and skill-based training opportunities in conjunction with NEP 2020.
- IQAC facilitates new leadership development among the faculty and staff for becoming globally competent.
- IQAC constantly sensitizes the faculty on emerging frontier areas of technology (Energy and Environment, Carbon capture, Water desalination and wastewater treatment, Renewable energy, Nanotechnology, Additive manufacturing, Cyber security, etc).
- IQAC initiates new MoUs and collaborations and also monitors the outcomes.
- IQAC does impact analysis on societal impact through Civic and social service internship (CSSI).

Learning outcomes at periodic intervals

- IQAC monitors the effective implementation of blended learning for the internal assessment awarded to the students.
- IQAC monitors the quality of the question papers set by the faculty while aiming to achieve the desired course outcomes.
- Students are appraised of the intentional implementation of blooms taxonomy level 4 to 6 in the question paper.
- IQAC organizes a Research review symposium for faculty members, Ph.D. research scholars and Symposium (oral presentation) for Technical Staff.
- IQAC organizes quarterly reviews on IPR status and conducts orientation for new inventions.
- IQAC mentors faculty members to write institutional project proposals of national importance and international competence.
- IQAC conducts Student Satisfaction Survey and Employees/Student/parents feedback to gauge the effectiveness and to improve upon the Structures & methodologies of operations.
- IQAC appraises the administration on new practices set by the UGC.

IQAC involves all the stakeholders in the review process to make the entire process of teaching-learning resources and teaching-learning process, a wholesome experience at PDEU.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.5.2 Institution has adopted the following for Quality assurance 1. Academic Administrative Audit (AAA) and follow up action taken 2.Confernces, Seminars, Workshops on quality conducted 3. Collaborative quality initiatives with other institution(s) 4.Orientation programme on quality issues for teachers and students 5. Participation in NIRF 6.Any other quality audit recognized by state, national or international agencies (ISO Certification, NBA).

Response: A. Any 5 or more of the above

File Description	Document
Upload e-copies of the accreditations and certifications	View Document
Upload details of Quality assurance initiatives of the institution (Data Template)	View Document
Paste web link of Annual reports of University	View Document
Link for Additional Information	View Document

6.5.3 Incremental improvements made for the preceding five years with regard to quality (in case of first cycle), Post accreditation quality initiatives (second and subsequent cycles).

Response:

Incremental improvements made for the preceding five years with regard to quality (in the case of the first cycle)

- 2015 -2020 has been a phase when **Choice based credit system** was implemented.
- The number of choices for students to choose from **professional core and professional electives** was substantially increased.
- That was the phase when **IPR activity sensitization** was happening.
- The first phase saw courses on **Mechatronics** introduced to bring a paradigm shift from traditional mechanical and electronics courses.
- dot net courses, **IBM-based Big Data analytics** were introduced.
- Cloud computing and **Fog computing** courses got introduced to the curriculum.
- The notion of **Cyber-Physical Systems** brought new verticals between CSE and ECE courses.
- The transition from **4G to 5G** technology got introduced.
- The notion of **additive manufacturing** and **polymer 3-D printing** was introduced as special topics in the curriculum.
- Online courses and the notion of **crediting MOOC courses/NPTEL** courses are set in the new credit banking system.

Post accreditation ACADEMIC quality initiatives (second and subsequent cycles):

- Post accreditation The focus was on **Outcome-based education, from structuring to rigorous implementation.**
- **Emphasis on Industry 4.0 verticals.**

- All courses were altered with **Course outcomes (1 to 6). Co's mapping with PO's** implemented in all schools and Programs.
- **IPR Apex committee** was instituted to enhance the activity (250 patents filed).
- High-end **titanium/Metal printing machine** of industrial grade installed first amongst the universities as an ATMANIRBHAR BHARAT initiative.
- More than 600 students have benefited.
- **15 % of** credit banking from MOOC courses is introduced **every semester**.
- To enrich Faculty: **Faculty research review symposium** introduced (300 posters presented in span of two semesters).
- To enrich Students: **Ph.D. scholars** research review symposium conducted (40 have presented).
- To enrich **technical/non-teaching staff**: Co-PO mapping review symposium introduced (16 staff have presented so far).

Post-Accreditation ADMINISTRATIVE initiatives:

1. **Additional Scholarships for Students:** To encourage the meritorious students and also to support financially weaker students of the society and also to promote education among the girl students by introducing additional scholarships Total Number of Students benefited: 2427 by government scheme amounting to INR 23,41,98,500/- and Total Number of students benefited: 1239 by the Institution's scheme amounting to INR 15,84,51,650/-.
2. **Internationalization of Education:** Various programs by OIR were started with the objective to provide an international orientation of educational programs and exploring international cooperation in education and research in association with international universities and industry experts. The major initiatives are **Study in India Program (SIP), Semester Exchange & Abroad Program, Faculty with Foreign Exposure, and International Admission**.
3. **Installing a new Translational Research Centre facility (TREC-PDEU)** created worth 40 Crores. A new paradigm to take research to industry adaptation. I4.0 verticals initiated.
4. **Introduction of New Programs:** Value-added 3 B.Tech & 13 MA, M.Sc., M.Tech programs introduced to **increase employability** and to cater to the nation's needs in core sectors like Automobile Engineering, ECE, Petrochemical Engg., Cyber Security, Data Science,
5. Over **75 faculty from reputed universities like IIT** Ph.D. researchers have been recruited to match global standards.
6. **Robust institutional facilities** are provided for major projects funded to faculty members; even to the extent of creating new centres as per the societal demands. Centre for water treatment, Centre for CO2 capture and sequestration.
7. **Facilitated inter-institutional** Centre for critical thinking.
8. **Augmented Alumni connect**

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

Criterion 7 - Institutional Values and Best Practices

7.1 Institutional Values and Social Responsibilities

7.1.1 Measures initiated by the Institution for the promotion of gender equity during the last five years.

Response:

Various initiatives related to gender, sensitization and the facilities for women on campus:

Primary initiatives to enhance gender equity:

1. Women leadership in academics and research administration enhanced from (4 % to 23%)
2. An increase in the number of female faculty (up to **16.8%** as of date)
3. Increase in female staff ratio (from **14.62% to 26.71 %**)
4. Improved female student intake (From **1493 students to 1975** students).
5. The special quota for female students(10%) and **scholarships** are available based on All India JEE Main score.
6. Admission through **DASA for female** students in place (15 in the last five years).
7. **79+ Foreign national** Female students pursuing 4 year UG programme and PG Programme admitted through STUDY IN INDIA programme and direct admissions.
8. In the School of Liberal studies covering seven disciplines, **50% quota** for female students.
9. **Robust HR** policy to draw women as faculty members: MHRD pay Scale, HRA and Additional HRA allowance.
10. **Maternity** leave for 26 weeks along with INR 75,000 for medical expenses.
11. **Separate hostel** facilities both in the academic area as well as in high rise hostel and apart from the women warden a female faculty is also nominated as a mentor.
12. **Transport** facility for students, staff and faculty coming from the city.
13. **Women in Technology:** a special funding grant received from British petroleum in 2021 up to **430,000 US Dollars** towards, M.Tech, PhD, Skill development and Faculty research.
14. Committed to **Prime Minister's PhD** scholarship for women-starting June 2022.
15. 85+ women housekeeping staff employed and salaries paid throughout the pandemic.

Secondary initiatives to secure gender equity:

1. Women's Cell – PDEU: <https://www.pdpu.ac.in/womens-cell.html>

The Women's Cell ensures the dignity of women at work, a safe working and learning environment for staff and students free from gender discrimination and sexual harassment.

- To create awareness amongst students about the problems faced by women of all strata due to gender issues.
- To create an environment of gender justice where men and women work together with a sense of personal security and dignity.
- To foster decision-making ability in girl students for making informed choices in areas like education, employment, and health.

2. Centre for Counselling Services

- The Centre for Counselling Services at the University provides mental health-centred consultation to students, faculty, and staff struggling with personal, academic, or social concerns.
- In 2019 Women's Cell and CCS team hosted a day-long gender sensitization workshop. 275 students have availed of the CCS service.

3. Day Care Centre for employees' children

- With an objective to provide a safe, better, and secure environment with quality caregivers for the children of employee parents, the University started the daycare facility in May 2019.
- With this facility, the employee parents having young children can work with peace of mind of knowing their children are safe on the campus.
- The facility includes a kitchen utility and an exclusive toilet facility for the children.

4. Common Room Facility

- A common room facility is provided in each building (A total of 09 rooms).
- Sanitary pad vending machine (05 nos) across the campus.

File Description	Document
Specific facilities provided for women in terms of: a.Safety and security b. Counselling c. Common Rooms d. Day care center for young children e. Any other relevant information	View Document
Annual gender sensitization action plan	View Document

7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures

- 1.Solar energy
- 2.Biogas plant
- 3.Wheeling to the Grid
- 4.Sensor-based energy conservation
- 5.Use of LED bulbs/ power efficient equipment

Response: A. 4 or All of the above

File Description	Document
Geotagged Photographs	View Document
Any other relevant information	View Document

7.1.3 Describe the facilities in the Institution for the management of the following types of

degradable and non-degradable waste (within 500 words)

- **Solid waste management**
- **Liquid waste management**
- **Biomedical waste management**
- **E-waste management**
- **Waste recycling system**
- **Hazardous chemicals and radioactive waste management**

Response:**1. Solid waste management**

All the solid waste generated on the campus is being segregated into plastic and paper waste (biodegradable and non-biodegradable) and dumped into classified dustbins.

2. Liquid waste management and recycling

PDEU has developed a centralized system to collect all the wastewater generated on the campus to the treatment facility located on the campus. Safe and clear water is produced using a water treatment plant and channelizing it to the garden area in and around campus. The landscape area of the campus is about **98 acres**. The University is equipped with two Sewerage Treatment Plants (STPs) each with a capacity of treating **300 KLD**. These STPs have been designed to treat commonly the Sewage and wastewater generated from hostels and other academic buildings in the campus spread over the campus.

Used water from different hostels and academic buildings is sent to STP units and after treatment, about **80%** of it is used for gardening and floor cleaning. Rest 10-15% is released to the municipal drainage line.

In addition to it, there are twelve numbers of percolation wells with a total capacity of **20 KL/hr** at different locations. These percolation wells are shallow excavated trench filled with gravel or crushed stone that is designed to infiltrate stormwater through permeable soils into the groundwater aquifer. A percolation trench is similar to a dry well, which is typically an excavated hole filled with gravel. The purpose of these percolation tanks is to recharge the groundwater storage and hence seepage below the seat of the bed is permissible.

3. Biomedical waste management

Bio-medical waste is not generally produced on campus. However after the pandemic, the use of mask and gloves have gone up, and the disposal facility for the same has been created in different locations on the campus.

4. E-waste management

The toxic nature of chemicals inside the components of electronic equipment exhibits harmful properties that can cause serious environmental damages unless disposed of properly. Any E-waste, such as monitors, keyboards, mouse, hard disk, PC, circuit board, equipment, etc. is disposed to local vendors from time to time. Students are also requested to give their generated E-waste electronics items to the designated storage location to dispose it along with institute E-waste. Server virtualization and desktop virtualization are

encouraged to minimize e-waste.

These practices have made the e-waste management process extremely effective and efficient inside the PDEU campus. These practices help the students understand the standard procedures in the management of e-waste which they can adopt and benefit in the future.

5. Hazardous chemicals waste management

Due care is taken to dispose of crude oil (generated in very less quantities) being used as a hazardous substance. The laboratories are set up keeping safety in mind. Researchers follow standard safety practices by wearing proper PPE during handling hazardous substances. Fire prevention systems (**INR 3 Crore invested in hostels and all G+2 buildings**) along with automated emergency retardant systems are incorporated across the campus.

File Description	Document
Relevant documents like agreements/MoUs with Government and other approved agencies	View Document
Geotagged photographs of the facilities	View Document

7.1.4 Water conservation facilities available in the Institution:

1. Rain water harvesting
2. Borewell /Open well recharge
3. Construction of tanks and bunds
4. Waste water recycling
5. Maintenance of water bodies and distribution system in the campus

Response: A. Any 4 or all of the above

File Description	Document
Geotagged photographs / videos of the facilities	View Document
Any other relevant information	View Document

7.1.5 Green campus initiatives include:

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Pedestrian Friendly pathways
4. Ban on use of Plastic
5. Landscaping with trees and plants

Response: A. Any 4 or All of the above

File Description	Document
Various policy documents / decisions circulated for implementation	View Document
Geotagged photos / videos of the facilities	View Document
Any other relevant documents	View Document

7.1.6 Quality audits on environment and energy are regularly undertaken by the Institution and any awards received for such green campus initiatives:

- 1.Green audit
- 2.Energy audit
- 3.Environment audit
- 4.Clean and green campus recognitions / awards
- 5.Beyond the campus environmental promotion activities

Response: A. Any 4 or all of the above

File Description	Document
Reports on environment and energy audits submitted by the auditing agency	View Document
Certification by the auditing agency	View Document
Any other relevant information	View Document

7.1.7 The Institution has disabled-friendly, barrier free environment

- 1.Built environment with ramps/lifts for easy access to classrooms.
- 2.Divyangjan friendly washrooms
- 3.Signage including tactile path, lights, display boards and signposts
- 4.Assistive technology and facilities for Divyangjan accessible website, screen-reading software, mechanized equipment
- 5.Provision for enquiry and information : Human assistance, reader, scribe, soft copies of reading material, screen reading

Response: A. Any 4 or all of the above

File Description	Document
Policy documents and information brochures on the support to be provided	View Document
Geotagged photographs / videos of the facilities	View Document
Any other relevant information	View Document

7.1.8 Describe the Institutional efforts/initiatives in providing an inclusive environment i.e., tolerance and harmony towards cultural, regional, linguistic, communal socioeconomic and other diversities (within 500 words).

Response:

To train the students to position themselves as dynamic leaders in the society, they are sensitized to tolerance, harmony toward cultural diversity which is achieved through:

- **35 student clubs** covering curricular and extracurricular activities.
- **Students from 34 countries & 30 states and union territories in India** live together in harmony and enjoy lifelong learning.
- **3 major university festivals:** sports, cultural & technical bring the entire PDEU community together to celebrate diversity.
- Each student club enjoys min. of 100 enrolments every year
- Every year, all the **liberal arts (480) and engineering (780) students go for a 1-month residential rural internship** where they learn from each other and also relate to humanity at the end of the 1st-year program.
- **Five NGOs are integrated** into the Rural internship and conduct field visits and practical sessions.
- In all, there is a great atmosphere for learning tolerance to appreciate different cultural and linguistic diversity
- **1176 programs/events** organized in the last 5 years

University has taken many initiatives in this direction by recruiting faculty members, staff, research scholars, and students from different regions to enrich this diversity.

- In all, **18 states** are represented by the PDEU Faculty & Staff.
- Students and Faculty participate in visiting old-age homes, and orphanages and relate to both the young and the old. This helps the students to become sensitive to societal demands and needs.
- The dining facilities are meant to be common for both genders to cultivate tolerance and sensitivity amongst students in a public place.
- The hostel dining hall brings students from different nationalities not only to learn the food habits but also to be sensitive to each other while observing religious and communal restrictions.
- University organizes two weeks campus connect activity by bringing children (**120 children every day**) from nearby villages and training them at the campus **for 6 hours each day**.
- Students, staff, and faculty get the opportunity to relate to these children professionally and culturally.
- University organizes special sessions with the mayor of the city to understand the urban challenges and to provide engineering solutions.
- University also **conducts hackathons** and in recent events, a special emphasis is given to having at least one girl student in each team and one liberal art and one management student to bring diversity and enhance critical thinking.
- University arranges special talks (**24 talks delivered**) on a curriculum given by non-teaching technical staff and the faculty members (**around 50 for each talk**) attend those sessions which brings equality to the workplace.
- School of Liberal Studies lays special emphasis to enhance diversity by ensuring **50% enrolment by female students**.
- PDEU organizes **frequent sports tournaments** (Cricket, Badminton, etc.) for its Faculty and staff.

Women staff, students, and faculty willfully join different teams and provide leadership while participating in such events.

- Special YOGA campus organized, YOGA day observed. SPIC MACAY events are organized annually.
- **A monthly Institute program calendar from the Office of Student affairs details all the activities to help students celebrate unity in diversity.**

File Description	Document
Supporting documents on the information provided (as reflected in the administrative and academic activities of the Institution)	View Document
Any other relevant information	View Document

7.1.9 Sensitization of students and employees of the Institution to the constitutional obligations: values, rights, duties and responsibilities of citizens (within 500 words).

Response:

The University facilitates an ecosystem for continuous awareness of constitutional obligations among students, faculty, and staff members. Multiple programs including regulations in the service book and student academic guidelines are listed. University also ensures periodic orientation programs for faculty and staff and also Ph.D., PG, and UG students.

- Republic Day and Independence Day are celebrated with great fervor.
- Teacher's day is celebrated to honor the teaching community.
- Students are largely encouraged to undergo NCC training, a mandatory exercise for students in liberal arts.
- Women's cell and anti-ragging committee sensitize the students' dignity and rights.
- NCC cadets are trained for the Republic Day parade and to participate in all nation-building events.
- PDEU has adopted 5 villages to emancipate the rural community based on the 'Unnat-Bharat Abhiyan' scheme using engineering solutions.
- University sensitizes students and staff about 'Pradhan Mantri Sahaj Bijli Har Ghar Yojana – Saubhagya' which is to provide energy access to all by last mile connectivity and electricity connections to all.
- University sensitizes about 'PM Har Ghar Jal Yojana' (Jal Jeevan Mission). As a result, a center for wastewater treatment and management is established to develop low-cost drinking water.
- As a part of institutional ethics, students and staff are sensitized about plagiarism and professional ethics.
- PDEU General Service rule book also endorses ethical obligations for all its employees as follows: *"All employees are expected to behave according to the ideals of national integration showing love, concern, respect to all without any discrimination whatsoever of caste, Creed or community. Any act or speech against this rule shall be considered as a serious breach of discipline and shall invite strict disciplinary action. Every employee shall strive in general to instill in the students under his/her care a high sense of values. Social conscientiousness, pride in their Alma Mater, and*

loyalty to the Country. It is the sacred duty of all the employees to work for the intellectual, moral, social and physical development of all students.”

Weblink of supporting document: https://iqac.pdpu.ac.in/naac2/Docs/Criteria%20VII/Criteria-VII%20Sub-criteria%20Compiled%20Data/7.1.9/7.1.9_Supporting%20Document.pdf

7.1.10 The Institution has a prescribed code of conduct for students, teachers, administrators and other staff and conducts periodic programmes in this regard.

- 1. The Code of Conduct is displayed on the website**
- 2. There is a committee to monitor adherence to the Code of Conduct**
- 3. Institution organizes professional ethics programmes for students, teachers, administrators and other staff**
- 4. Annual awareness programmes on Code of Conduct are organized**

Response: A. All of the above

File Description	Document
Details of the monitoring committee composition and minutes of the committee meeting, number of programmes organized, reports on the various programs etc., in support of the claims	View Document
Code of ethics policy document	View Document
Any other relevant information	View Document

7.1.11 Institution celebrates / organizes national and international commemorative days, events and festivals (within 500 words).

Response:

Efforts of the university in celebrating/organizing national and International commemorative days, events and festivals during the last five years have ensured the required sensitization for all the stakeholders.

- PDEU has a long-standing tradition of celebrating prominent events on the campus.
- The Office of Student Activities, Involvement & Leadership (OSAIL) complements students' academic experiences by providing services and resources that engage students in creating campus culture through social, cultural, intellectual, spiritual, athletic, recreational, artistic, political, and service opportunities.
- Opportunities are provided for student participation and leadership experiences in a variety of officially recognized clubs and organizations. Currently, it mentors and funds around 35+ student clubs and conducts around 250+ events throughout the academic year.
- The staff is committed to delivering quality advising, resource materials, leadership development opportunities, and administrative support services to impact students' growth and development and

enhance the success of each student organization.

- It ensures that students with Leadership qualities get the platform to experiment with their ideas and enhance their skills. There are sports/recreation clubs, special interest groups, professional societies, and social service activities, cultural & technical events.

Annual Report of OSAIL <https://www.pdpu.ac.in/osailAnnualReport.html> can be accessed here.

The total number of events conducted by OSAIL year wise:

- 1.2020-21: 340
- 2.2019-20: 205
- 3.2018-19: 197
- 4.2017-18: 196
- 5.2016-17: 238

List of all the festivals organized under OSAIL each year:

1. Independence Day Celebration
2. Raangtaal
3. Kite Festival (Kai Po Che)
4. Republic Day Celebration
5. Engineer's Day

Apart from these, PDEU organizes 2 other major commemorative events:

1. Prof. Kartic Khilar Memorial Lecture
2. Pandit Deendayal Memorial Lecture Series @ PDEU

Prof. Kartic Khilar Memorial Lecture

In the 14 years of our journey, PDEU has achieved several benchmarks and is marching towards many more such accolades. Every successful achievement had a group of people who envisioned, worked hard, and bestowed their experience in the development of PDEU. One such eminent personality was late Director-General Prof. Kartic C. Khilar who contributed to shaping the Academic and Research Culture of PDEU during his tenure. Prof. Khilar passed away on 13/11/2009. In the souvenir of Prof. Kartic Khilar, the university organizes a lecture series in his memory.

Glimpses of "Prof. Kartic Khilar Memorial Lecture-2021" on Future of sustainable fossil fuel in Net-Zero Economy: An Indian Perspective By Shri. Vasudevan Kannan, Ex-ED-BM, Western Offshore-ONGC (Visiting Professor, IIT Bombay) Date: 22/11/2021

Other links:

- <https://alumni.pdpu.ac.in/f/astrology-vs-astronomy---prof-kartic-khilar-memorial-lecture-9th-year-1288>
- <https://in.linkedin.com/company/fipi-pdeu-sc>
- <https://d.facebook.com/spmpdpu/>

Pandit Deendayal Memorial Lecture Series @ PDEU

Pandit Deendayal Memorial Lecture series-a public event- is organized at the University, Gandhinagar every year on the 25th of September, the birth anniversary of Shri Deendayal Upadhyay, Social Activist, Politician, and Author, who was the founder of the political movement Jan Sangh. Over the years, luminaries from different walks of life have graced the occasion and have spoken on a variety of topics.

Link for 2021 edition of Pandit Deendayal Memorial lecture

<https://www.youtube.com/watch?v=-qpoKrHnBJM>

File Description	Document
Geotagged photographs of some of the events	View Document
Any other relevant information	View Document
Annual report of the celebrations and commemorative events for the last five years	View Document

7.2 Best Practices

7.2.1 Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual.

Response:

1. Title of the Best Practice-1: Empowered to Empower

2. Objectives of the Practice:

- Faculty centric Ensuring and Enriching Schemes
- Student-centric Enabling and Engaging schemes

3. The Context:

Aiming to establish an internationally renowned institution that will have Focus on Energy education, research, and innovation as its vision and mission, PDEU embarked on this Journey for more than a decade. To justify the efforts taken to implement the Mission, the Government recognized our efforts and rechristened the name of our university from PDPU to PDEU in the month of January 2021. Our Honourable Prime Minister Shri Narendra Modiji observed the following during the 8th Convocation: "PDEU has gone far ahead of times...". This is an attestation to the robust human resource policy we have for the faculty who drive the mission of the university with diligence. Students on the other side complimented by showing a quest to learn and to become.

The institute has transformed itself into a nurturing ground for hybrid learning by developing cutting-edge

digital infrastructure with up-to-date research and an educational curriculum to promote and facilitate research and learning. Thus, PDEU has become synonymous to a student paradise for higher education and learning and has become one of the choicest universities in Gujarat.

4. The Practice:

Having an Eye for Excellence: In teaching, research, Innovation and Societal impact. How we achieve this is listed as follows:

- **Robust Faculty Empowerment Schemes** brought about the best potential from the faculty/staff and the administrative staff. Around 60% of the faculty members are from IIT and NIT backgrounds and some have abroad postdoc experience, bringing Global excellence to the campus.
- **Salary Empowerment:** The Pay package is commensurate to the IIT Faculty salary (7th pay commission), which serves as motivation. Further extraordinary HRA and medical benefits are very peculiar to PDEU which brings great security among the faculty in terms of moral backing. Perhaps we may be the only private university extending the MHRD scale of pay rather than UGC. This draws global competence to the PDEU campus.
- **Professional Development Empowerment:** CPDA is a unique coverage for PDEU faculty which is usually extended only at IITs. This unique assistance helps faculty to go for professional membership, attend national and international conferences without hindrance and faculty feel strongly encouraged.
- **Curriculum Design and Revision Empowerment:** Depending on the core courses, the curriculum needs frequent revision. Faculty are encouraged to bring flexibility and the latest technology input into curriculum design.
- **Industry Connect/Consultancy Empowerment:** Faculty members are encouraged to initiate industry collaboration for solving complex engineering problems and to establish consultancy activities.
- **Book Writing Empowerment:** Faculty members have greatly enjoyed knowledge dissipation through book writing over 52 books have been written and more than 120 book chapters have been documented by highly rated publishers during the assessment period.
- **Empowered to Publish only in Quality–Peer-Reviewed Journals:** Faculty are never forced to publish in paid journals or in non-refereed journals. As a result between 2020 March and 2022 March, the H-Index of the university rose from 31 to 53, and publications in Scopus indexed rose from 360 to 590 Journals and 650 papers including UGC care in 2022. This is purely faculty genius! PDEU celebrates the quest for excellence and there is no match to faculty commitment.
- **Empowered to cover Innovative ideas through Patents:** From a mere 6 patents filed in the year 2019, Faculty members during the COVID concentrated on patent filing, due to COVID and all their stacked innovative ideas which were not published were well documented and those novel innovations were patented through an exclusive drive for IPR. This exercise resulted in the filing of over 250+ patents and over 200 are granted.
- **Empowered with Project Seed Funding:** Rs. 19.39 Crores funding in the last five years by Government agencies. Project seed funding of Rs.16 Crore for 950 students, and 107 faculty members during the assessment years.
- **Empowered for Research:** Rs. 1.6 Crore to Research Scholars in the last five years, 32 faculty members availed sabbatical leave (Rs. 1.2 Crore), Rs.42 Lakhs for the International visits of faculties for research.
- **Empowered by Industries:** The overall Shell chair is worth 1.1 Million USD, 7.5 crores Suzlon Chair worth Rs. 1.05 Crores and a British petroleum grant worth 3.5 Crore for five years.

- **Empowered by Peers:** The faculty research review symposium is an in-house activity showcasing to peers at PDEU and assessed and judged by peers themselves. As a result, there is a great appreciation among the faculty for each other and this results in joint projects, and interdisciplinary activities.
- **Empowered to Mentor:** Mentoring students by faculty happens at a different level and from daily classroom activity it extends to student research projects, to comprehensive projects, and even extends up to start-up activities.

5. Evidence of Success:

1. For the concerted effort on Empowerment, the PDEU stakeholders have reposed the faith by translating the entire teaching-learning process, research, consultancy, and IPR activity of the campus. A 90% leap forward in Quality publication, from 360 Publications to 650 in just one year, institutional H-Index jumping from 31 to 53, IPR from 2 granted in the year 2020 to 200 + in 2022 speaks volumes of the Empowerment.
2. **GATE 2022 All India Rank:** PDEU students topped the GATE ranking AIR 1st Rank and 4 out of the Top 10 AIR holders are from PDEU.

6. Problems Encountered and Resources Required:

- Although we recruited more than 70 faculty members newly, due to COVID, we could realize only 50 joining us due to the migration challenges. Further, we have prioritized recruiting only Ph.D. holders from abroad with post-doc experience and the choices are limited to the COVID scenario. We hope to improve our recruitment drive.
- We had plans to bring more Visiting professors from abroad institutions, which got curtailed due to COVID. We will continue to pursue this drive.

7. Notes:

- Our empowerment strategies need to refine based on the NEP -2020 guidelines. We may need a new creed of faculty for skill training in focused areas preferably from Industrial background.
- Our online mode of interaction has to find a balance with on-campus activities to intensify our empowering mechanism.
- **The Future Plan: Empowering for Global competence**
 - To let the faculty empowered be locally engaged with other institutions to truly bring a knowledge hub ecosystem in Gujarat.
 - To joyfully train energy soldiers for our nation
 - To provide energy for all and prepare youth for tomorrow in the midst of digital transformation.
 - To excel in providing engineering solutions for complex engineering problems.
 - To bring global competence among the students for different core expertise.
 - To bring a Global village atmosphere.

To bring Global competence, each faculty contribution needs to become nationally important to academia and industry. Faculty and students are strongly encouraged to leave a strong footprint of their integrity and competence for the next generation of students to follow.

1. Title of the Best Practice-2: Enlightened to Enlighten: To transcend to quality leadership and to impart to the next generation

2. Objectives of the Practice:

- To decentralize for effective leadership.
- To impart accountability in every mission of the university.
- To make them assume responsibility to envision beyond the strategic plan.

3. The Context:

- Success without successors is not a success. Today the nation demands accountability in every cadre so that the gap analysis for leadership is made evident to the next generation. The government's charter for Swachh Bharat, Make in India, Atmanirbhar Bharat, Semiconductor Mission, Atal Innovation clearly suggests that we have not raised enough leadership and skill set to meet the country's challenges. COVID has shown our country's vulnerability in many areas including Silicon technology, Data Science, Medical Technology, Health infrastructure, Biotechnology, and many other core areas. Academia has to take the full onus to develop skillset and infrastructure to this end so that self-sustenance is fully realized.
- With COVID resilience on one side, the ever-changing industrial requirements on the other side, the campuses today are faced with the Industrial revolution and global pandemic. The time left out for students to be fully equipped during such a short campus experience brings several questions as to how to meet this challenge. The role of teachers is immense. Unless the faculty own the Vision and see the national and global need, the crucial training for today's youth can be staggered and can let down the next generation. How do we carry forward this great mission to prepare leaders for tomorrow?
- In the last five years, PDEU has made pioneering **contributions to the National Missions** initiated by the Government of India that includes, Digital India, Make in India, Skilling India, Swachh Bharat Abhiyan, Unnat Bharat Abhiyan, and Women Empowerment and Atmanirbar Bharat.

4. The Practice:

Quality education and imparting leadership in Energy transition, Energy generation, Energy Storage, Renewable Energy, Water, Sanitation and Waste Management, AI and Robotics, Digital Manufacturing, Internet of Things, Biomedical challenges, Innovation and social engineering are top priority areas for the institution.

4.1. Administrative Decentralization at PDEU:

- i) Autonomy is given to Directors and Deans for Academic, administrative, and financial roles.
- ii) Responsibility is entrusted to policy formulation, financial planning, industry interaction, placement initiatives, and Quality assurance.
- iii) Accountability is expected in Course outcomes, Students progression, Faculty Development, and Financial management.

4.2. Autonomy from the parent organization:

- Although GERMI as a parent organization has invested over 140 Crores into the infrastructure development, GERMI has played a crucial role in giving autonomy to PDEU in functioning as per UGC/AICTE norms and regulations.
- This is a very rare occurrence of autonomy to see an organization (PDEU) fully bloom to its stature and excellence.
- Much of the credit goes to the Government of Gujarat, GSPC, and GERMI for the hand-holding in fulfilling the Vision and Mission of realizing an Energy University.

4.3. Governance and impartation:

- PDEU is gifted with unique leadership. Born out of visionary leadership to set up a Petrocapital in Gujarat by the then Chief Minister Shri Narendra Modi, PDEU was born in 2007 under the able leadership of Dr. Mukesh Ambani.
- His virtues as a technology leader have touched the length and breadth of the campus which is evident from its world-class infrastructure.
- The Board of Governors is further blessed with Industrialists of very high stature and the Principal secretaries and Former Chief secretaries of the Government of Gujarat. This extravagant leadership has underlined the quality impartation.

4.4. Top-down approach in Setting up infrastructural facilities:

- A rapid recourse in bringing the state-of-the-art infrastructure and timely reversal of decisions to suit the industry demands has given the edge to bring the latest and the most demanding infrastructure to complement the teaching community's demand.
- PDEU has taken bold and pioneering initiatives to demonstrate nascent technologies based on the encouragement received by the Government of Gujarat.
- Today PDEU stands tall in experiential learning facilities.
- We place on record the help rendered by Industries for their handholding to bridge the gap: Shell, Suzlon, British Petroleum, Maruti Suzuki, NTPC, ONGC, and ADANI.

4.5. Bottom-up approach in grooming leadership:

- PDEU enjoys seeing the leadership training maturing right from the freshmen to the final year students.
- Young faculty to the Senior most faculty. There is an air of freedom one would sense in the portals of the campus.
- Young faculty are encouraged through different schemes to set up their research facilities at the earliest and also mentor to set-top priority for Teaching.
- Through many co-curricular and extra-curricular activities the gap between Faculty and students,
- Young faculty and seniors are brought to the minimum so that leaders emerge as a natural progression.
- Gender sensitivity and out-of-state inclusivity bring dynamism to the leadership.
- The vision and mission are disseminated at all levels. Also, the technical staff and non-teaching staff are treated with the same significance and they play a crucial role in grooming the students equally.

4.6. Robust budget allocation and resource mobilization:

- Extravagant faculty and student-centric investments have helped in a big way to bring the latest facilities to every department and School.
- Due to a complete halt in civil operations, most of the mega-infrastructure projects got delayed due to COVID lockdown.
- By the end of 2024 much more elegant infrastructure, which has mandatory approvals and the necessary budget will make the campus a great experience for the stakeholders.

4.7. How closer can we position PDEU in the light of the Government's priority on Energy transition/ National agenda?:

- The year 2020 has been the hallmark of our Journey as PDEU. On the 8th convocation, Our Honourable Prime Minister, sensing the progress made by PDEU requested the GoG to change the name of PDEU to PDEU. Hence in Jan 2021, PDEU became PDEU. We sense a greater responsibility in meeting the national charter, especially in Energy transition and Climate Change.

5. Evidence of Success:

- The Government has made PDEU the academic partner in developing a draft proposal for the PM's 5 Trillion Dollar economy roadmap and how ENERGY transition as a vertical can affect this mandate. There cannot be a greater opportunity for PDEU than this, but to get such a mandate to address national challenges and to be involved in Nations progress.
- Through the benevolent support of major industries committed to energy transition viz; SHELL Hazira, Suzlon, British Petroleum, Maruti Suzuki, NTPC, ONGC, and ADANI, we are able to work on frontier areas of energy management and participate in providing.

6. Problems encountered and resources required:

- There is a challenge in the pace at which the National agenda on NEP 2020, and other Skill India Initiatives are pursued by the Government and the preparedness on the part of academia to implement is a major challenge. This is mainly due to the two full years of lock-down due to pandemics. Academia at present is more concentrating on connecting with the students and to carry out all remedial classes which otherwise could not be substituted through online mode.

7. Notes: Future Plan:

The immense success of the students and the initiatives at the university to cater to student needs and holistic development can be attributed to the diverse faculty that PDEU employs. With over 500 faculty and staff from reputed national and international universities, 200 guest faculty from the industry, and over 250 research scholars, the university prides itself on the support that students receive from them.

- To groom more leadership among the faculty and students through more engaging initiatives.
- To reinforce the National mission on Energy transition and to bring stakeholders more frequently to the campus in order to emerge with a new workforce.
- To train more students with skills required for the newer challenges and to make them industry-ready.
- To have a bigger picture in training stakeholders at large, not only limited to PDEU but across PAN India to raise Global competence.

File Description	Document
Best practices in the Institutional web site	View Document

7.3 Institutional Distinctiveness

7.3.1 Portray the performance of the Institution in one area distinctive to its priority and thrust within 1000 words

Response:

TRANSFORMATIONAL LEARNING TO TRANSLATIONAL LEARNING: “*Becoming the Ambassadors for Societal Transformation and Nation Building*”

I. Transformational Learning: *Innovative Pedagogy*

1. **Service learning** is a flagship curriculum initiated by the School of Liberal Studies which involves credit-based 240 hours of community-based learning. (1500 students every year). Students are involved in a wide range of activities, which often benefit the community, while also advancing the goals of a given curriculum. **Community-based curriculum** activities are paired with *structured preparation and student reflection*. Proponents of academic service-learning feel that the real-world application of **classroom knowledge in a community setting** allows students to synthesize course material in more meaningful ways. Common goals achieved by service-learning include: gaining a *deeper understanding of the course/curricular content, and an enhanced alignment with the Government policies, initiatives, and industry CSR activities*. Outcomes: 1500 students every year with 3 to 4 weeks on the field with the community.
2. **Project-based learning:** Although the entire nation has gone through the metamorphosis with online teaching and other teaching pedagogy, experiential learning, and project-based learning have been the most impactful teaching tool to increase student reflection on outcome-based learning. Outcome: More than 90 hours are invested in PBL per semester for this effort. 900 students benefited every year.
3. **Research-based learning:** Students align with faculty in the research projects with specific objectives and with a time-bound exercise that gives learning skills in a time-bound fashion and brings the project to completion. Notably developing project reports and documenting for presentation gives wider skills for employability and to set an eye for Global competence. Outcome 470 students have received INR 2.1 Cr for the UG and PG research projects.
4. **Capstone projects-based learning: 642+ projects** have been executed during the assessment period with complete mentoring from Industry experts. Such engagements directly give the mindset of the industry demands. These projects are the finishing school concepts that qualify students both for Industry and Higher studies. Outcome: 642 comprehensive projects
5. **Corporate internship:** Students apply their scholastic learning by solving business, political, and economic challenges through corporate internships in India and abroad. Outcome: 2500+ internships
6. **Startup and Entrepreneurship-based learning:** Starting with Hackathon, securing IPR, and identifying investors for a business model, the university has a business ecosystem to groom ideas into reality. The synergy of our students is reflected in the elevator pitch made for funding & IPR

documentation. Outcomes: 30+ sessions.

7. **Globalization:** School of Liberal Studies provides leadership and a global outlook not only to the school but also to the entire university. The office of International Relations is committed to:

- Outbound Initiatives:
 - International Exposure Programs: 30+ IEPs, 740 Students & 48 Faculties
 - Travel Grant Initiative: 950+ Students
 - Student Abroad/Exchange Programs: 18 Programs, 30 Students
 - AIESEC Outbound Programs: 350+ Students to 20+ Countries

- Inbound Initiatives:
 - Study In India Program: 9+ SIPs, 100+ Students & 11 Faculties
 - International Admissions: 280+ Students from 38 different countries
 - Hosting International Faculties: 15+ International Faculties
 - AIESEC Inbound Programs: 350+ Students from 40+ Countries

Mixed learning: Even before the pandemic, e-learning was nurtured at PDEU to appropriate 10-15% of the credits to be acquired online. Students across all schools have credited courses through all the approved online portals including Swayam/NPTEL/MOOC platform, EDEX: and COURSERA Outcome: 3000 students completed more than 22000 certificates.

II. Translational learning: Attaining Atmanirbhar Bharat in Energy through a “Triple Helix Model” - Government – Academia-Industry partnership worth INR 240 Crore out of which 120 crores during the assessment period

To respond to the innovation for Industry 4.0, “Make in India” and Skill India initiatives are paramount challenges for Atmanirbhar Bharat. PDEU has developed a vibrant campus with advanced facilities and technologies in its campus. The way we achieve this need is through an intense collaboration that will bring Industry and Academia closer.

“Triple Helix Model”: Government – Academia-Industry partnership includes.

1. **International Automobile Center of Excellence (iACE) – INR 100 Crore:** Maruti Automobile Center of Excellence (iACE) was developed by **Maruti Suzuki India Limited in association with the Government of Gujarat and PDEU** Through this facility 17 certificates, PG programs will be launched. In the areas of automotive manufacturing and automotive electronics.
2. **1MW Solar Power Plant Integrated to the Grid besides 0.7 MW rooftop Solar. A fund of INR 44 Crore from Gujarat Energy Development Agency (GEDA), for the establishment of the Solar Research Development Center (SRDC) on the campus.** A ground-mount photo-voltaic (PV) 1 MW power plant is installed first of its kind in Gujarat with multiple technologies available in one place.
3. **The Siemens CoE in automotive is funded by the Government of Gujarat (INR 20 Crore),** There are nine sophisticated laboratories for design and validation, Advanced Manufacturing, Test and Optimization, Automation, electrical and Energy savings, Process Instrumentation Mechatronics, CNG Machines, CNC Controller, robotics and Rapid prototyping which provide an

opportunity for promising and prospective innovations.

4. **Centre of Excellence for Geothermal Energy (CEGE) funded by Gujarat Energy Development Agency**, Government of Gujarat (**INR 20 Crore**), was founded in response to the quest for other new renewable energy verticals. PDEU has pioneered this work in all earnestness and has demonstrated till date a 40 kW geothermal working model at Dholera by empowering Swaminarayan Temple.
5. **Drilling Cementing and Stimulation (DCS) Research Center (INR 10 Crores)** was established under the aegis of the Government of Gujarat State Petroleum Corporation (GSPC). It is in alignment with the “Make in India” vision of our Honorable Prime Minister.
6. **British Petroleum** has granted **INR 3.5 Crores** towards Women in Technology in the year 2021 **Shell Hazira 7.5 Crores** for Digital twins, Green Hydrogen, **Suzlon Chair for 1 Crore**.
7. **Manufacturing Skill Development (INR 35 Crores) (the year 2020-2025)**.

a. 45 MW solar panel production line **funded by GEDA** will be commissioned by June 2022, **17 Crores**.

b. Metal 3D printing for Avionic, Automotive applications with INTECH, **5 Crores**.

c. Energy storage Fabrication: Redox flow batteries with **V-FLOW TECH; 2 Crores**.

8. **Indo-EU Bilateral Project under Horizon 2020 – Water Desalination (INR 11 Crores)**.

9. **British Petroleum (BP) has granted a USD 450,000 project for five years to train Women in Technology, starting October 2021.**

PDEU acknowledges the mandate given by the Government and the Industry.

File Description	Document
Any other relevant information	View Document
Appropriate web in the Institutional website	View Document

5. CONCLUSION

Additional Information :

Disruptive I 4.0 Technologies:

- The University has established **Translational Research Centre (TREC-PDPU)** to the tune of INR 40 Crores to build all the verticals of I 4.0 including additive manufacturing, energy storage, next-generation computing including Industrial IoT, AI, and Mixed reality.

Pioneering Manufacturing Facilities:

- The university is contributing to the ATMANIRBHAR BHARAT INITIATIVE through its Centres of Excellence, including the recent addition of Metal 3D printing facility dedicated to the nation for research in the Energy, Healthcare, Automotive and Aerospace Sector,”
- The University is setting up a 50 MW assembly and manufacturing unit for mono crystalline silicon photovoltaic solar panels, a pioneering initiative for our nation and for the stakeholders. The production line will demonstrate cell to panel integration, lamination and EL testing process. It will be the first demonstration of manufacturing capability through Academia-Government partnership. This infrastructure will directly execute Capacity Building Programs in the area of Technology Development, Production Management & Finance Management for Solar Production and will showcase benchmarking for the best practices in the domain.

PDEU-Innovation & Incubation Centre:

- PDEU has secured 5th position in Atal Ranking of Institutions on Innovation Achievements (ARIIA) ranking for creating a strong eco system for Innovation and entrepreneurship is also recognized as the "Incubation Centre of the Year with Prominent IP Culture" by Intellectual Property Protection Organization (IPPO) at IP Fest for three consecutive years, 2017, 2018 & 2019. It is approved as a "Technology Business Incubator" by the Department of Science and Technology, Government of India. IIC PDPU has filed more than 86 IPRs have been filed, 100+ startups have incubated and generated more than 950 employments.

Concluding Remarks :

As we live in this global village, there is an increasing need to shape students into global citizens. With international collaborations and exposure programs, many students are equipping themselves with flexibility and adapting to changing times. PDEU facilitates and encourages them to step forward into International Exchange Programmes and be prepared for dynamic international careers. Since 2010, the university has partnered with numerous universities abroad to Summer Internships and Research Programmes. “It was designed in such a way that students get an exposure academically, technically and culturally with the intent to create and promote a collaborative academic and Research platform at some of the finest universities in the world.”

In recent years, the university has transformed the teaching-learning process, making it more adaptable for future generations. With the change in how concepts are taught and learned, the objective of grooming students

has taken a paradigm shift for the future. Now, with the hybrid approach to learning, syllabi have been designed to incorporate STEM subjects and integrate them with practical learning. With all this in mind, PDEU continues to work towards creating a space safe for students to explore their creativity and innovative ideas.

NAAC

6.ANNEXURE

1.Metrics Level Deviations

Metric ID	Sub Questions and Answers before and after DVV Verification																				
2.4.4	<p>Average percentage of full time teachers who received awards, recognition, fellowships at State, National, International level from Government/Govt. recognised bodies during the last five years</p> <p>2.4.4.1. Number of full time teachers receiving awards from state /national /international level from Government/Govt. recognized bodies year wise during the last five years</p> <p>Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>58</td> <td>70</td> <td>47</td> <td>33</td> <td>25</td> </tr> </tbody> </table> <p>Answer After DVV Verification :</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>42</td> <td>59</td> <td>30</td> <td>26</td> <td>19</td> </tr> </tbody> </table> <p>Remark : DVV has excluded certificate of participation and appreciation.</p>	2020-21	2019-20	2018-19	2017-18	2016-17	58	70	47	33	25	2020-21	2019-20	2018-19	2017-18	2016-17	42	59	30	26	19
2020-21	2019-20	2018-19	2017-18	2016-17																	
58	70	47	33	25																	
2020-21	2019-20	2018-19	2017-18	2016-17																	
42	59	30	26	19																	
3.6.2	<p>Number of awards received by the Institution, its teachers and students from Government /Government recognised bodies in recognition of the extension activities carried out during the last five years</p> <p>3.6.2.1. Total number of awards and recognition received for extension activities from Government/ Government recognised bodies year-wise during the last five years.</p> <p>Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>34</td> <td>28</td> <td>17</td> <td>8</td> <td>11</td> </tr> </tbody> </table> <p>Answer After DVV Verification :</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>Remark : Relevant supporting documents has not shared by HEI.</p>	2020-21	2019-20	2018-19	2017-18	2016-17	34	28	17	8	11	2020-21	2019-20	2018-19	2017-18	2016-17	0	0	0	0	0
2020-21	2019-20	2018-19	2017-18	2016-17																	
34	28	17	8	11																	
2020-21	2019-20	2018-19	2017-18	2016-17																	
0	0	0	0	0																	
3.6.3	<p>Number of extension and outreach programs conducted by the institution through NSS/NCC, Government and Government recognised bodies during the last five years</p> <p>3.6.3.1. Number of extension and outreach programs conducted by the institution those through NSS/NCC, Government and Government recognised bodies during the last five years</p> <p>Answer before DVV Verification:</p>																				

2020-21	2019-20	2018-19	2017-18	2016-17
54	43	39	20	15

Answer After DVV Verification :

2020-21	2019-20	2018-19	2017-18	2016-17
41	23	21	16	09

Remark : DVV has not consider days activities.

3.6.4 Average percentage of students participating in extension activities listed at 3.6.3 above during the last five years

3.6.4.1. Total number of students participating in extension activities listed at 3.6.3 above year-wise during the last five years.

Answer before DVV Verification:

2020-21	2019-20	2018-19	2017-18	2016-17
3920	4906	3884	2607	2432

Answer After DVV Verification :

2020-21	2019-20	2018-19	2017-18	2016-17
2631	2304	2014	1007	1242

Remark : DVV has given the input as per metric 3.6.3

4.2.4 Percentage per day usage of library by teachers and students (foot falls and login data for online access) during the latest completed academic year

4.2.4.1. Number of teachers and students using library per day over last one year

Answer before DVV Verification : 3843

Answer after DVV Verification: 769

Remark : DVV has made the changes as per average of teacher and students using library per day on (dates)

6.3.4 Average percentage of teachers undergoing online/ face-to-face Faculty Development Programmes (FDP)during the last five years (Professional Development Programmes, Orientation / Induction Programmes, Refresher Course, Short Term Course).

6.3.4.1. Total number of teachers attending professional development Programmes, viz., Orientation Programme, Refresher Course, Short Term Course, Faculty Development Programmes year wise during last five years

Answer before DVV Verification:

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2020-21	2019-20	2018-19	2017-18	2016-17
233	163	126	52	24

Answer After DVV Verification :

2020-21	2019-20	2018-19	2017-18	2016-17
196	130	90	40	19

Remark : DVV has excluded multiple participation of the same faculty during the academic year as ONE only from the data template.

2.Extended Profile Deviations

ID	Extended Questions																				
1.1	<p>Number of programs offered year-wise for last five years</p> <p>Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>48</td> <td>41</td> <td>35</td> <td>32</td> <td>33</td> </tr> </tbody> </table> <p>Answer After DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>49</td> <td>42</td> <td>36</td> <td>33</td> <td>34</td> </tr> </tbody> </table>	2020-21	2019-20	2018-19	2017-18	2016-17	48	41	35	32	33	2020-21	2019-20	2018-19	2017-18	2016-17	49	42	36	33	34
2020-21	2019-20	2018-19	2017-18	2016-17																	
48	41	35	32	33																	
2020-21	2019-20	2018-19	2017-18	2016-17																	
49	42	36	33	34																	
2.5	<p>Total Expenditure excluding salary year-wise during last five years (INR in Lakhs)</p> <p>Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>13833</td> <td>11024</td> <td>8516</td> <td>6951</td> <td>10604</td> </tr> </tbody> </table> <p>Answer After DVV Verification:</p> <table border="1"> <thead> <tr> <th>2020-21</th> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>6094</td> <td>7533</td> <td>6637</td> <td>5975</td> <td>5692</td> </tr> </tbody> </table>	2020-21	2019-20	2018-19	2017-18	2016-17	13833	11024	8516	6951	10604	2020-21	2019-20	2018-19	2017-18	2016-17	6094	7533	6637	5975	5692
2020-21	2019-20	2018-19	2017-18	2016-17																	
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