

Kilachand Devchand Polytechnic, Patan

Commissionerate of Technical Education, Gujarat



Institutional Development Plan (IDP)

Duration: 2025-2030



Contact:



K.D. Polytechnic, Patan
Near T B hospital, Hemchandracharya North University, Patan, Gujarat 384265



+91 2766 220419



principalkdp631@gmail.com



Location

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1. Executive Summary

1.1 Brief Overview of the Institution's Current Status

K.D. Polytechnic, Patan, is a recognized technical institute in North Gujarat, committed to providing quality diploma-level engineering education. With a strong foundation of academic excellence, well-equipped laboratories, and a dedicated faculty team, the institute has been instrumental in producing technically skilled graduates who contribute effectively to industry and society. The campus infrastructure continues to evolve to support modern learning needs and technological advancements.

1.2 Vision, Mission, and Strategic Goals

K.D. Polytechnic, Patan envisions imparting quality technical education to develop ethically responsible and industry-ready professionals who can contribute meaningfully to society. The mission focuses on strengthening academic infrastructure, encouraging holistic student development, enhancing industry-institute collaboration, fostering entrepreneurial skills, and promoting social responsibility. The strategic goals for 2025–2030 include achieving academic excellence, integrating emerging technologies, enhancing digital infrastructure, expanding industry partnerships, promoting sustainability, and preparing for institutional accreditation and growth.

1.3 Summary of Key Initiatives in the IDP

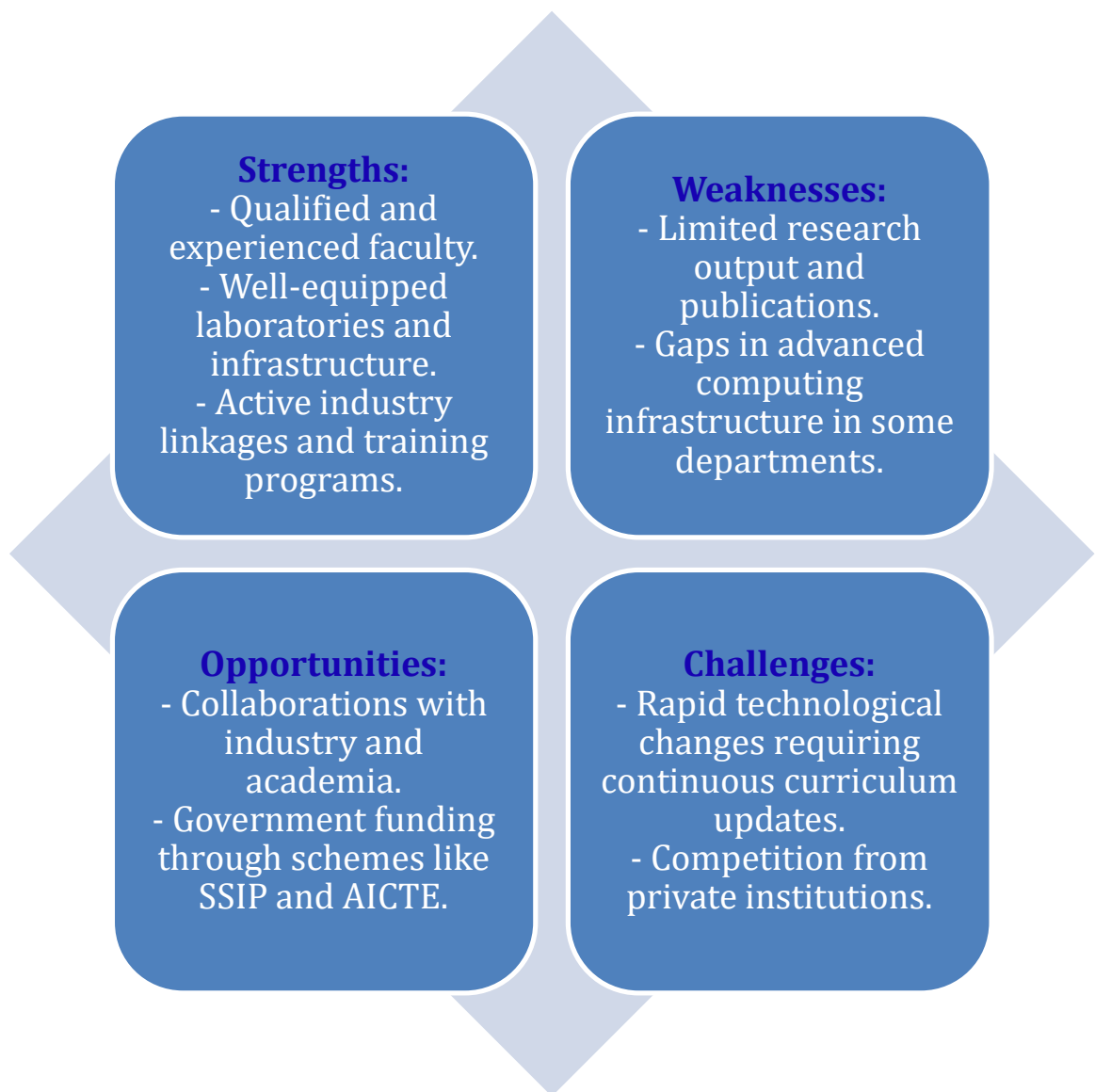
- Introduction of new-age electives in AI, IoT, EV, and Cloud Computing
- Establishment of smart classrooms, advanced laboratories, and department-wise infrastructure enhancements
- Implementation of Faculty Development Programs (FDPs), MOOCs, and project-based learning
- Strengthening of MoUs with industry and introduction of structured internship programs
- Comprehensive student development support including soft skills, entrepreneurship, and placement assistance
- Emphasis on green campus initiatives, community outreach, and international collaborations

This Institutional Development Plan (IDP) aims to align the institute's progress with the emerging demands of technical education and industry, supporting sustainable growth, quality enhancement, and future readiness.

2. Institutional Profile

- **Name of Institution:** Kilachand Devchand Polytechnic, Patan
- **Year of Establishment:** 1961
- **Type of Institution:** Government Polytechnic (Public Sector)
- **Affiliations:** Gujarat Technological University (GTU), AICTE approved
- **Programs Offered:**
 - Diploma in Computer Engineering
 - Diploma in Electrical Engineering
 - Diploma in Mechanical Engineering
 - Diploma in Civil Engineering
- **Accreditation:**
 - AICTE Recognized
 - Affiliated to GTU
 - NBA accreditation
- **Faculty and Staff Strength:**
 - Total Faculty: Approx. 70+
 - Administrative & Technical Staff: Approx. 25
- **Student Demographics:**
 - Total Students: Approx. 1500
 - Intake Capacity:
 - Computer Engineering: 225
 - Mechanical Engineering: 150
 - Civil Engineering: 150
 - Electrical Engineering: 112
 - Students from diverse rural and semi-urban backgrounds, with high representation of first-generation learners.

3. SWOC Analysis



4. Vision, Mission and Core Values

4.1 Revised or reaffirmed vision and mission

Vision

To impart quality technical education and create an ethically sound class of well-trained youth who can seize opportunities in industry and serve society responsibly.

Mission

1. To develop well-equipped laboratories and strong academic infrastructure to support effective learning.
2. To promote co-curricular and extra-curricular activities for the overall personality development of students.
3. To strengthen interaction between industry and institute for real-world exposure and skill enhancement.
4. To inculcate entrepreneurial skills and an innovative mindset among students.
5. To instil discipline and social awareness, enabling students to handle practical problems in daily life.

4.2 Core institutional values

- **Quality Education:** Commitment to academic excellence and continuous improvement.
- **Ethical Foundation:** Promoting integrity, accountability, and responsible behaviour.
- **Holistic Development:** Fostering intellectual, emotional, and social growth.
- **Industry Relevance:** Aligning education with current and future industry needs.
- **Entrepreneurship:** Encouraging creativity, innovation, and self-reliance.
- **Social Responsibility:** Cultivating a sense of community service and environmental awareness.

5. Strategic Goals and Objectives

5.1 Short-term Goals (1–2 Years)

- Establish AI/ML, EV, and IoT labs
(Computer Engineering and Electrical Engineering Department)
- Upgrade FMHM, Metallurgy, and Workshop labs
(Mechanical Engineering Department)
- Construct departmental building and smart classroom
(Civil Engineering Department)
- Set up Language Laboratory
(General Department)
- Initiate FDPs, MOOCs, and sign MoUs with industries
(All Departments)

5.2 Medium-term Goals (3–5 Years)

- Develop smart classrooms and seminar halls
(Mechanical Engineering, Civil Engineering and Electrical Engineering Department)
- Upgrade labs and infrastructure
(Electrical Engineering, Computer Engineering and Civil Engineering Department)
- Expand outreach activities
(Computer Engineering, Electrical Engineering and General Department)
- Implement flipped classrooms and blended learning
(All Departments)
- Promote student entrepreneurship and 100% internships
(Electrical Engineering, Mechanical Engineering and Computer Engineering Department)

5.3 Long-term Goals (5+ Years)

- Set up Advanced Manufacturing and IoT Labs
(Mechanical Engineering and Computer Engineering Department)
- Achieve national-level accreditation readiness
(All Departments)
- Institutionalize sustainability programs
(Electrical Engineering, Civil Engineering and General Department)
- Strengthen international collaborations and global MoUs
(Computer Engineering and Mechanical Engineering Department)
- Promote faculty and student research culture
(All Departments)

6. Key Focus Areas

6.1 Academic Excellence

Objective:

Improve quality through modern teaching and industry-relevant curriculum.

Key Strategies and Timeline:

- Implement Outcome-Based Education (OBE) across all departments – 2025–2026
- Launch electives in AI, IoT, Cloud, EV, Traffic Engineering, etc. – 2025–2027
- Integrate Project-Based Learning (PBL) – 2025–2026
- Adopt flipped classroom methods and peer learning – 2027–2030

Departments: All

6.2 Research and Innovation

Objective:

Build a research ecosystem at diploma level.

Key Strategies and Timeline:

- Establish R&I Cells in all departments – 2025
- Encourage participation in national hackathons – 2025–2030
- Apply for SSIP funding for student projects – 2026–2029
- Promote SDG-aligned mini and major projects – 2025–2030

Departments: Mechanical, Civil, Electrical, Computer

6.3 Faculty Development

Objective:

Upgrade faculty skills through continuous learning.

Key Strategies and Timeline:

- Organize annual FDPs on emerging technologies – 2025–2030
- Encourage faculty to complete NPTEL, SWAYAM, Coursera MOOCs – 2025–2029
- Arrange industry exposure and training visits – 2026, 2028, 2030
- Promote publication, patents, and research seminars – 2026–2030

Departments: All

6.4 Infrastructure Development

Objective:

Develop modern learning spaces and labs.

Key Strategies and Timeline:

- Construct new buildings (Civil, Electrical) – 2025–2026
- Develop smart classrooms and seminar halls – 2026–2028
- Upgrade and establish specialized labs (AI, ML, CNC, IoT) – 2025–2028
- Ensure accessibility and sustainability in infrastructure – 2027–2030

Departments: All

6.5 Industry Collaboration

Objective:

Strengthen academic-industry linkages.

Key Strategies and Timeline:

- Sign MoUs with nearby industries – 2025–2026
- Launch structured internship and mentorship programs – 2025–2030
- Conduct expert lectures and industrial workshops annually – 2025–2030
- Involve industry in curriculum reviews and project evaluations – 2027–2030

Departments: All

6.6 Student Support and Employability

Objective:

Prepare students for the workforce and entrepreneurship.

Key Strategies and Timeline:

- Conduct soft skill and communication workshops – 2025–2030
- Organize entrepreneurship awareness camps – 2025–2028
- Facilitate placement drives and mock interviews – 2025–2030
- Guide students for higher studies and competitive exams – 2026–2030

Departments: All

6.7 Digital Transformation

Objective:

Digitize education and administration.

Key Strategies and Timeline:

- Integrate MOOCs into the regular curriculum – 2026–2030
- Promote blended and hybrid learning environments – 2027–2030
- Install high-end computing infrastructure (servers, labs) – 2025–2027
- Digitize attendance, assessments, and academic records – 2026–2028

Departments: Computer, Electrical, Mechanical, General

6.8 Sustainability and Green Campus Initiatives

Objective:

Create an eco-friendly, responsible campus.

Key Strategies and Timeline:

- Organize energy conservation awareness drives – 2025–2030
- Install solar panels and conduct green audits – 2026–2029
- Launch waste segregation and water conservation campaigns – 2026–2028
- Collaborate with NGOs on environmental projects – 2026–2030

Departments: Civil, Electrical, General

6.9 Internationalization

Objective:

Broaden global exposure and readiness.

Key Strategies and Timeline:

- Identify potential international academic partners – 2026–2027
- Plan MoUs for online exchange and joint activities – 2028–2030
- Promote participation in international contests/webinars – 2025–2030
- Start foreign language and cultural awareness modules – 2027–2030

Departments: Computer, Mechanical

6.10 Promotion of Knowledge of India

Objective:

Instil cultural and constitutional values.

Key Strategies and Timeline:

- Add Indian Constitution and Environmental Ethics to curriculum – 2025–2026
- Organize seminars on Indian innovation and history of science – 2026–2030
- Celebrate Indian knowledge systems through themed events – 2025–2030
- Conduct yoga, meditation, and value education sessions – 2026–2030

Departments: All

7. Action Plan / Implementation Strategy

Objective	Key Activities	Responsible	Timeline	Estimated Budget	Key Performance Indicators (KPIs)	Review
AI/ML Lab Setup (CSE, EE)	Lab equipment procurement and commissioning	HODs	2025–2026	₹10–15 Lakhs	Lab functionality, student engagement	Annual
Introduction of New Electives (AI, EV, IoT, etc.)	Syllabus revision, faculty training	Dept. Coordinators	2025–2027	–	No. of new courses, student enrollment	Annual
Research & Innovation	Innovation cells, SSIP proposals, hackathons, SDG projects	T&P Cell, All Departments	2025–2030	₹5–10 Lakhs/department	Funded projects, hackathon entries, SSIP grants	Annual
Green Campus Initiatives	Environmental awareness programs, green audits	NSS Unit, Faculty	2026–2030	₹1 Lakh/year	No. of events, measurable environmental improvements	Biennial
Faculty Development	FDPs, MOOCs (NPTEL, Coursera), ATAL, industry exposure	HODs, Principal	2025–2030	₹1 Lakh/department/year	FDPs/faculty/year, MOOCs completed, industry visits	Semester
Academic Excellence	OBE, PBL, MOOCs integration, blended learning	All Departments	2025–2030	Included in dept. budgets	No. of electives, % PBL use, % MOOCs completion	Annual
Infrastructure Development	New buildings, lab modernization, smart classrooms	Civil, Mech, Elec, Comp Depts	2025–2030	₹6+ Cr (cumulative)	Labs/classrooms built, usage metrics	Annual
Industry Engagement	MoUs, internships, mentorships, expert lectures	T&P Cell, All Departments	2025–2030	Operational (Minimal)	MoUs signed, internship %, industry sessions held	Annual
Student Support & Employability	Soft skills training, placements, entrepreneurship	All Departments + Gen Dept.	2025–2030	₹5–10 Lakhs/year	Placement %, trainings conducted; start-ups supported	Annual
Digital Transformation	Smart classrooms, LMS integration, e-pedagogy	All Departments	2025–2030	Part of infra budget	LMS usage, smart board adoption, digitized content usage	Annual

8. Monitoring and Evaluation

8.1 Mechanism for Tracking Progress

Online and Offline Monitoring

To ensure accountability and transparency, the institution will adopt a hybrid tracking system combining digital dashboards and on-ground documentation:

- **Annual Submission of Progress Reports** by all departments to the Principal and Institutional IDP Monitoring Committee.
- **Digital Dashboards** will track KPIs such as lab upgrades, faculty development programs (FDPs), student placements, and course additions.
- **Semester-wise Reports** on MOOC completion from SWAYAM, NPTEL, and Coursera platforms.
- **Department-level Records** maintained for infrastructure, academic activities, outreach events, and financial documentation.
- **Teaching and Learning Logs** to capture innovations like flipped classrooms and PBL usage.

Internal Audit Mechanism

- **Scheduled Departmental Audits** will be conducted in **2026, 2028, and 2030**.
- Evaluation will include:
 - Use of **structured checklists** based on IDP deliverables.
 - **Stakeholder feedback** from students, faculty, and industry on infrastructure, pedagogy, and outcomes.
 - **Physical verification** of infrastructure and lab functionality.

8.2 Mid-term Review and Feedback Loop

Review Timeline

- **Mid-Term IDP Review** will be conducted in **2027**, including:
 - Summary of achievements and pending milestones.
 - Documentation of gaps and implementation of corrective actions.
- **Annual KPI Review Schedule:**
 - **June** – Labs & Pedagogy
 - **March** – New Electives & Curriculum Enhancements
 - **July** – Placement & Internship Progress
 - **November** – Outreach and Social Responsibility Programs

Feedback Mechanism

Regular feedback will be gathered and acted upon to support continuous improvement:

- **Faculty:** Training needs, curriculum suggestions, teaching tools.
- **Students:** Satisfaction with academic delivery, infrastructure, digital platforms.
- **Industry:** Skill alignment, internship experiences, employability feedback.
- **Action Taken Reports (ATRs)** will be prepared annually to document implemented changes.

8.3 Stakeholder Involvement

Internal Stakeholders

- **Heads of Departments (HODs):** Lead departmental implementation and monitoring.
- **Faculty:** Submit progress reports, engage in feedback and review processes.
- **Students:** Participate in semester feedback, student council discussions.
- **Administrative Staff:** Support logistics, finance, and documentation.

External Stakeholders

- **Industry Partners:** Provide inputs via MoUs, mentorships, and expert sessions.
- **NGOs and Community Representatives:** Collaborate in outreach, green campus initiatives, and social programs.
- **Alumni:** Contribute through mentorship, guest lectures, and placement support.

8.4 Common Key Performance Indicators (KPIs)

KPI Metric	Review Frequency	Evaluation Method
Number of upgraded & functional labs	Annually (June)	Physical verification, lab usage logs
FDPs completed per faculty	Semester-wise (Dec/June)	Certificates, FDP attendance records
New electives introduced	Annually (March)	Academic board and curriculum committee records
Use of PBL / Flipped Classrooms	Annually (June)	Teaching logs, peer/class observation
Internship placements (%)	Annually (August)	Placement records, company feedback
MoUs & industry interactions	Annually (December)	Signed documents, event and visit reports
Student projects aligned with SDGs	Annually (April)	Project abstracts, mentor validations
Outreach beneficiaries reached	Annually (November)	Event reports, feedback forms
Year-on-Year placement improvement (%)	Annually (July)	T&P analytics and reports
MOOCs completion (%)	Semester-wise (May/Nov)	Verified platform certificates (SWAYAM/NPTEL etc.)

9. Risk Management

9.1 Identification of Key Risks:

Category	Potential Risks
Academic	- Low student enrollment in certain programs- Lag in curriculum updates
Infrastructure	- Delays in lab/classroom upgrades- Budget overruns in construction projects
Faculty	- Shortage of trained faculty in emerging areas- Faculty attrition
Student Performance	- Decline in placement rates- Low participation in internships/MOOCs
Technology Adoption	- Inadequate IT infrastructure- Low adoption of digital teaching tools
Industry Collaboration	- Limited industry engagement- Inactive MoUs
Community Outreach	- Poor participation in social responsibility programs
Administrative	- Inefficient inter-departmental coordination- Regulatory non-compliance

9.2 Mitigation Strategies

Risk Area	Mitigation Strategy
Academic	Periodic curriculum review committees- Introduce trending electives (AI, EV, ESG, etc.)
Infrastructure	Prioritize high-impact upgrades- Establish project milestones and monitoring committees
Faculty	Regular FDPs and certifications- Introduce faculty recognition and retention programs
Student Performance	Strengthen career guidance cells- Make internships and MOOC credits part of academic requirements
Technology Adoption	Budget allocation for digital tools- Train faculty on LMS, smart boards, blended teaching
Industry Collaboration	Activate MoUs with joint projects/events- Build an Industry Advisory Board (IAB)
Community Outreach	Collaborate with local NGOs- Align outreach with student activities (e.g., NSS, tech camps)
Administrative	Implement ERP systems for planning and tracking- Regular compliance reviews with AICTE/GTU norms

10. Budget and Financial Plan

10.1 Detailed financial requirements

Laboratory Development

Department	Proposed Lab Developments	Estimated Cost
Mechanical	FMHM, Metallurgy, Heat Engine, Advanced Manufacturing (CNC, 3D printer), etc.	₹53.4 Lakhs
Civil	High-tech testing equipment (Marshall Stability, DGPS, COD/BOD, etc.)	₹17.95 Lakhs
Electrical	Electrical Machines Lab, Upgrades across all labs with panels and ICT	₹10 Lakhs (approx.)
Computer	AI/ML Lab, Cybersecurity upgrades, IoT kits, High-end GPUs/Servers	₹15 Lakhs (approx.)
General	Physics, Chemistry lab enhancements, Language Lab setup	₹12 Lakhs
Total Estimated		₹108.35 Lakhs (~₹1.08 Cr)

Smart Classrooms and ICT Upgrades

Department	Smart Classroom Upgrades	Estimated Cost
Mechanical	Smart boards, seminar hall with AV, AC systems	₹18 Lakhs
Civil	Smart classroom and seminar hall	₹4 Lakhs
Electrical	Smart classrooms planned over multiple years	₹5–6 Lakhs
Computer	LMS integration, smart classroom setup	₹5–6 Lakhs
General	Language lab network setup with software	₹10 Lakhs (shared)
Total Estimated		₹43–45 Lakhs (~₹0.45 Cr)

New Departmental Buildings

Department	Infrastructure Plan	Estimated Cost
Civil Engineering	New building as per AICTE norms	₹4 Crores
Electrical Engineering	New building (planned in IDP goals, estimate matched to Civil)	₹4 Crores (estimated)
Total Estimated		₹8 Crores

Faculty Development and Training

Activity	Estimated Annual Cost	Total (2025–2030)
FDPs, Industry Visits, MOOCs (Mechanical, Civil, Electrical, Computer, General)	₹1 Lakh/Dept/Year x 5 Departments	₹25 Lakhs
Additional specialized training programs (AICTE ATAL, NPTEL sponsorships)	Included above	—
Total Estimated		₹25 Lakhs

Outreach and Community Initiatives

Programs	Estimated Cost
Bootcamps, Rural Awareness, CSR Drives	₹1 Lakh/year
Thalassemia Testing, Digital Literacy	₹1 Lakh/year
Total (2025–2030)	₹5 Lakhs

Equipment for Digital Transformation

Category	Estimated Cost
High-end Computing (Servers, IoT kits, Networking – Computer Dept.)	₹5–10 Lakhs
LMS Platform Setup & Faculty Training (all depts.)	Included in FDP
Total Estimated	₹5–10 Lakhs

Summary of Budget Estimates

Component	Estimated Total Cost
Laboratory Development	₹1.08 Crores
Smart Classrooms & ICT	₹0.45 Crores
New Departmental Buildings	₹8.00 Crores
Faculty Development & FDPs	₹0.25 Crores
Community Outreach	₹0.05 Crores
Digital Transformation	₹0.10 Crores
Grand Total (Approx.)	₹10.0–10.2 Crores

11.2 Sources of Fund

Source	Expected Contribution
Government (State/DTE/AICTE Grants)	Primary funding source
TEQIP or AICTE-ATAL Schemes	FDPs, Lab Development
Institutional Funds	Smart classrooms, minor upgrades
CSR Contributions from Industries	Equipment, outreach, MoUs
Alumni and Community Support	Events, training sponsorships

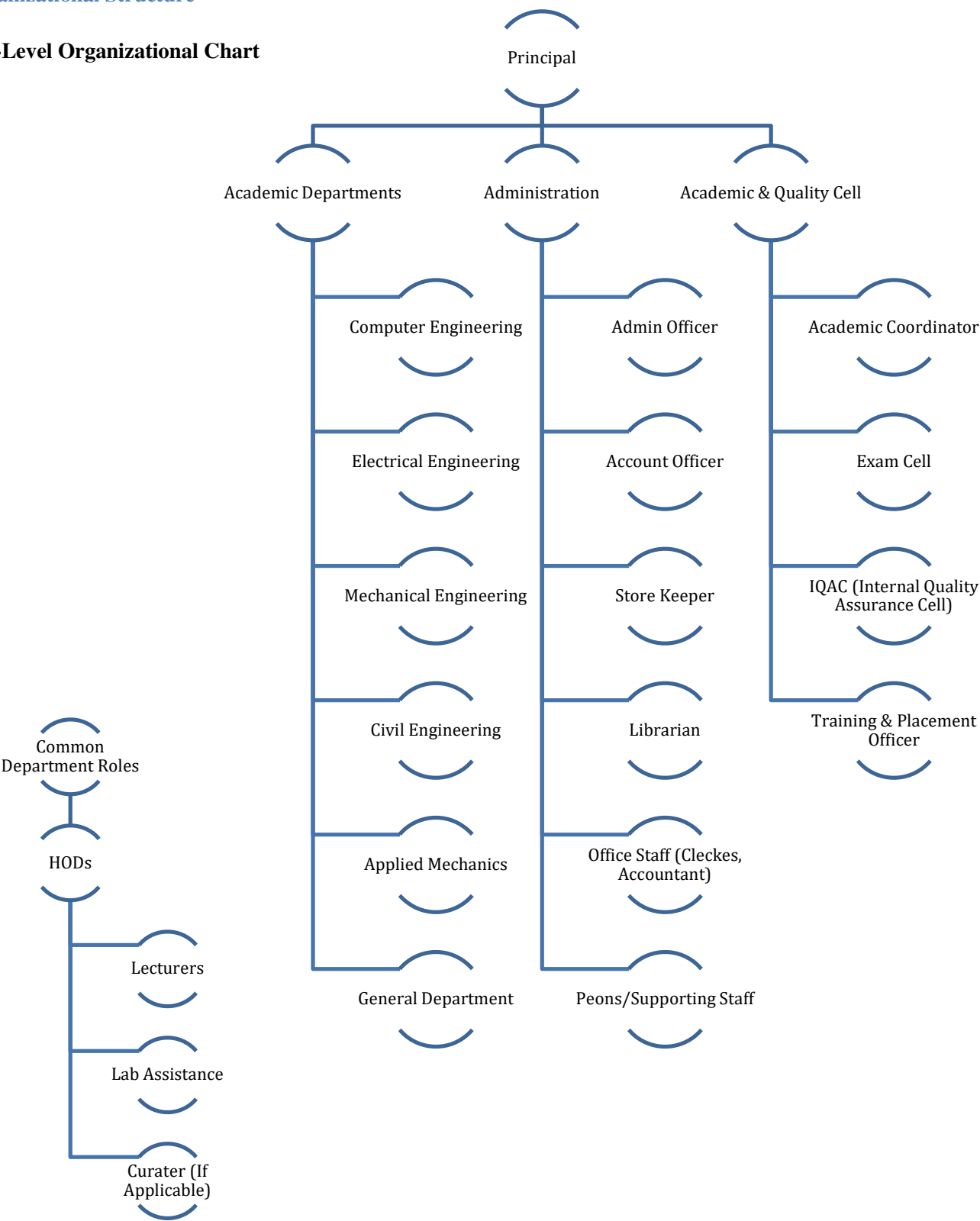
10.3 Sustainability Plan

Strategy	Implementation
Phased Expenditure Planning	Spread capital investments like solar panels, rainwater harvesting, and green landscaping across 5 years to reduce upfront financial pressure.
Recurring Revenue Generation	Introduce fee-based short-term certificate courses on sustainability, environmental testing services, and eco-tech consultancies through existing infrastructure.
Efficient Resource Utilization	Promote inter-departmental sharing of upgraded labs (e.g., Energy Lab, Environmental Lab) and centralized utility systems like rainwater harvesting.
Performance-Based Fund Mobilization	Apply for grants under SSIP, AICTE Green Campus , and GTU environmental schemes based on performance metrics like outreach, innovation, and SDG alignment.
MoU-Driven Support	Approach industry partners for CSR-based funding and equipment support through MoUs—targeting solar kits, waste segregation bins, and plantation drives.
Internal Fund Allocation System	Activate the institute’s Budget Committee to review and reallocate underutilized funds towards green initiatives, especially in non-lab-heavy departments.
Community and NGO Collaboration	Engage NGOs for support in plantation, e-waste collection, and awareness drives—especially for events and rural outreach.
Student and Faculty Engagement	Encourage eco-club activities, SDG-aligned projects, and green research ideas to justify internal investments and improve eligibility for government funds.
Cost-Efficient Design Approach	Use local materials, native plants, and energy-efficient equipment to reduce long-term operational costs of sustainability projects.
Sustainability Awareness Integration	Include sustainability modules in curriculum and workshops to reinforce value and institutionalize eco-conscious behavior among students and staff.

11. Annexures

11.1 Organizational Structure

Institute-Level Organizational Chart



11.2 Supporting Documents

- 11.2.1 Copies of Departmental IDPs (2025–2030):
 - 11.2.1.1 Computer Engineering Department IDP
 - 11.2.1.2 Electrical Engineering Department IDP
 - 11.2.1.3 Civil Engineering Department IDP
 - 11.2.1.4 Mechanical Engineering Department IDP
 - 11.2.1.5 General Department IDP
- 11.2.2 MoUs with Industry/Academic Partners
- 11.2.3 Accreditation Reports (NBA/NAAC/AICTE)
- 11.2.4 Institutional Vision-Mission statements