



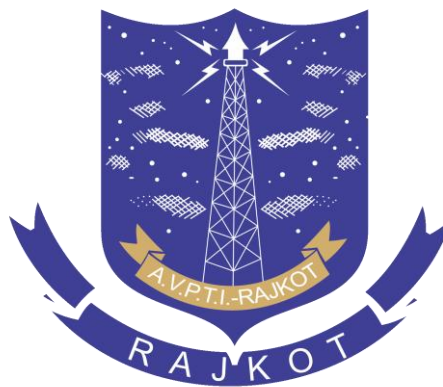
Education Department
Government of Gujarat



Commissionerate of Technical Education
Education Department - Government of Gujarat

INSTITUTIONAL DEVELOPMENT PLAN (IDP)

*5-Year Strategic Blueprint (2026 – 2031)
In Alignment with National Education Policy (NEP)*



A. V. PAREKH TECHNICAL INSTITUTE, RAJKOT

(Government of Gujarat Diploma Engineering College))

Affiliated to Gujarat Technological University (GTU)

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TABLE OF CONTENTS

INDEX

SECTION 1: INSTITUTIONAL PROFILE.....	4
1.1 Institutional Identity & Affiliation	4
1.2 Academic Programs & Approved Intake Capacity (A.Y. 2026-27).....	5
1.3 Student Enrollment & Gender Breakdown Trends	5
1.4 Faculty & Human Resources Profile	5
1.5 Physical & Digital Infrastructure Details	6
SECTION 2: VISION, MISSION & CORE VALUES	8
SECTION 3: INSTITUTIONAL SWOC ANALYSIS	9
SECTION 4: INSTITUTIONAL STRATEGIC ROADMAP.....	11
SECTION 5: INTEGRATED MODERNIZATION SUB-PLANS	12
5.1 Academic Excellence and Curriculum Modernization Sub-Plan	12
5.2 Infrastructure Upgradation and Digitalization Plan	12
5.2.1 Executive Mandate & Persuasive Funding Rationale.....	12
5.2.2 Institutional Baseline vs. Proposing Target State	13
5.2.3 Strategic Pillar 1: Smart Classroom Transition Blueprint	14
5.2.4 Strategic Pillar 2: Unified Cloud-Based ERP System	14
5.2.5 Strategic Pillar 3: Centralized Multidisciplinary Innovation & Tinkering Lab	14
5.2.6 Year Implementation Roadmap & Capital Budget Estimate	16
5.3 Faculty Development and Capacity Building Plan	17
5.3.1 Institutional Faculty Baseline and Governance Model.....	17
5.3.2 Performance Appraisal, Student Feedback, and Mentorship Loops.....	17
5.3.3 Continuous Upskilling and National Framework Integration.....	18
5.3.4 Research Support, Higher Studies, and Innovation Leadership.....	18
5.3.5 Year Faculty Capacity Building Action Plan (2026–2029)	19
5.4 Research, Innovation, and Startup Ecosystem Plan	20
5.4.1 Executive Framework: The Innovation-to-Enterprise (I2E) Corridor	20
5.4.2 Active Innovation Enablers: SSIP 2.0 Cell & GTU-DIC Spoke	20
5.4.3 Industrial Capitalization: Leveraging the PGVCL CSR Prototyping Assets	21
5.4.4 The "Diamond Legacy" Alumni Mentorship & Angel Network.....	22

5.4.5 Year Strategic Implementation Roadmap (2026-2029).....	23
5.5 Industry Linkages and Resource Mobilization Plan.....	23
5.5.1 Institutional Framework for Resource Mobilization	24
5.5.2 Strategic Internal Revenue Generation (IRG) Interventions	24
5.5.3 Year Financial and Operational Target Matrix	25
5.5.4 Integration with Alumni Network & Placement Ecosystem	25
5.6 Skilling and Employability Plan	26
5.7 Accreditation Readiness Plan	26
5.8 Alumni Engagement and Endowment Management Plan	27
5.9 Inclusivity and Outreach Plan.....	27
5.9.1 Equitable Access and Financial Support Programs	27
5.9.2 Gender Sensitization, Safety, and Equal Opportunity Cells.....	28
5.9.3 Community Development and Rural Outreach Initiatives.....	28
5.9.4 Year Implementation and Resource Mobilization Roadmap.....	29
SECTION 6: IDP STRATEGIC IMPLEMENTATION MATRICES.....	30
6.1 SWOT-to-KPI Action-Plan Strategic Matrix	30
6.2 5-Year Academic KPI Tracking Matrix.....	32
SECTION 7: MONITORING, EVALUATION, AND RISK MANAGEMENT PLAN	34
7.1 Multi-Tiered Monitoring and Evaluation Structure	34
7.2 Progress Tracking Mechanisms and Feedback Loops.....	34
7.3 Comprehensive Risk Management and Mitigation Matrix	35
SECTION 8: BUDGET, FINANCIAL PLAN AND SUSTAINABILITY	37
SECTION 9: CONCLUSION	38
SECTION 10: ANNEXURES.....	39
Appendix A: Organizational Structure and Governance	39
Appendix B: State Government / DTE Recruitment and Financial Delegation Policies	40

SECTION 1: INSTITUTIONAL PROFILE

A.V. Parekh Technical Institute (AVPTI), Rajkot, is a premier state government-owned polytechnic in Gujarat, established in 1948. Situated in the heart of Rajkot city—a major industrial and manufacturing hub of the Saurashtra region—the institute has built a rich 75-year-old legacy of delivering high-quality technical diploma education. Affiliated with Gujarat Technological University (GTU) and recognized by the All-India Council for Technical Education (AICTE), the institution serves as a critical engine for regional technical skilling, economic empowerment, and industrial placement.

1.1 Institutional Identity & Affiliation

Institutional Parameter	Institutional Baseline & Regulatory Details
Year of Establishment	1948
Ownership / Type	State Government (Commissionerate of Technical Education, Gujarat)
Affiliated University	Gujarat Technological University (GTU), Ahmedabad (NAAC A+ Accredited)
Approved Statutory Body	All India Council for Technical Education (AICTE), New Delhi
AISHE Code / Category	C-50 (State Government Polytechnic)
Principal	Mr. G V Parmar (Principal, AVPTI Rajkot)
Accreditation Profile	- Electronics & Communication Engineering (NBA accredited 2025-2028) - Instrumentation & Control Engineering (NBA accredited 2025-2028) - Computer Engineering (NBA accredited 2021-2024, Re-accredited 2024-2027); - Electrical Engineering (NBA accredited 2022-2025) - Biomedical Engineering (NBA accredited 2022-2025) - Costume Design (CACDDM) NBA accredited 2022-2025) - GTU (Affiliated University) NAAC Status: A+ Accredited
Current Enrollment Profile	1,314 Students (895 Boys and 419 Girls), maintaining a highly stable gender ratio of 68% Male to 32% Female (A.Y. 2025-26)

1.2 Academic Programs & Approved Intake Capacity (A.Y. 2026-27)

The official enrollment capacity for A. V. Parekh Technical Institute in Rajkot for the 2026-27 academic term incorporates both the standard Regular Diploma Programs and the newly approved pathways for working professionals, increasing the total campus capacity to 720 students per annum. Every regular program is authorized to admit international candidates under AICTE supernumerary quotas, while excluding NRI-specific allocations.

Program Level	Department / Course Specialization	Category	Intake Approved (2025-26)	Intake Approved (2026-27)	International Status
Diploma	Computer Engineering	Regular	180	180	Yes
Diploma	Electrical Engineering	Regular	150	150	Yes
Diploma	Biomedical Engineering	Regular	60	60	Yes
Diploma	Electronics & Communication Engg	Regular	60	60	Yes
Diploma	Information and Communication Technology	Regular	60	60	Yes
Diploma	Instrumentation and Control Engineering	Regular	60	60	Yes
Diploma	Renewable Energy	Regular	60	60	Yes
Diploma	Computer Aided Costume Design and Dress Making	Regular	30	30	Yes
Diploma	Electrical Engineering	Working Prof.	0	30	No
Diploma	Instrumentation and Control Engineering	Working Prof.	0	30	No
GRAND TOTAL	AVPTI Consolidated Campus Intake	All Streams	660	720	

1.3 Student Enrollment & Gender Breakdown Trends

The current student strength and gender demographics reflect a stable enrollment pattern with a healthy proportion of female students pursuing technical diploma studies:

- **Current Student Enrollment (CAY 2026–27): 1,314 Students (895 Boys and 419 Girls)**
- **Gender Ratio (CAY 2026–27): 68.1% Male to 31.9% Female**

Enrollment Trend Analysis:

- **CAY (2024–25): 1,314 Students (895 Boys | 419 Girls)**
- **CAYm1 (2024–23): 1,229 Students (819 Boys | 410 Girls)**
- **CAYm2 (2023–22): 1,293 Students (892 Boys | 401 Girls)**

1.4 Faculty & Human Resources Profile

A. Total Faculty Strength & Structure

- **Sanctioned Posts: 101**
- **Faculty In Position: 84 Members** (representing a highly stable **84% vacancy-fill rate**).
- **Cadre Distribution:**
 - **Professor & Equivalent: 0**
 - **Lecturer (Selection Grade): 11**
 - **Lecturer (Senior Scale): 5**
 - **Lecturer: 68**

B. Student-to-Faculty Ratio (SFR)

- **Institutional Student-to-Faculty Ratio (SFR): 16: 1** (calculated as 1,314 students to 84 in-position faculty members).

AICTE Compliance Note: This ratio is exceptionally strong and easily complies with the AICTE-mandated benchmark of 25:1 for diploma institutions, ensuring high individual student attention and mentorship.

C. Faculty Qualifications Baseline

The academic faculty is highly qualified, drawing on advanced pedagogical and research backgrounds:

- **Doctoral Degrees (Ph.D.):** Active doctoral degrees are held by core humanities and departmental faculty, including specializations in English, Chemistry, and Education.
- **Post Graduate Degrees (M.E. / M.Tech / Master's):** The **vast majority of technical faculty members hold postgraduate master's degrees** in their respective fields, exceeding standard polytechnic benchmarks.
- **Undergraduate Degrees (B.E. / B.Tech / Bachelor's):** Core entry-level lecturers hold engineering degrees and actively participate in continuous upskilling and ATAL induction training programs.

1.5 Physical & Digital Infrastructure Details

A. Academic & Practical Infrastructure

- **Classrooms & Seminar Halls: 22 well-furnished rooms.** This includes specialized, air-conditioned seminar halls in the Training & Placement cell equipped with LCD projectors, public address systems, and screens.
- **Laboratories: 40 modern, department-specific laboratories** equipped with specialized testing instruments, computer terminals, and trainers.
- **Central Workshop:** In addition to departmental labs, the campus houses a **Central Workshop block** to facilitate industrial shop-floor skilling, metallurgy, and machinery training.

B. Library & Information Center

- **Total Library Space: 750 m²** (with a dedicated reading room area of **430 m²** and a seating capacity of 50).
- **Volume & Title Wealth:** A physical repository housing **16,841 Volumes** across **5,401 unique Titles**.
- **Book Bank Scheme:** Holds **2,323 books** to provide targeted academic support to socioeconomically weaker and merit students, heavily supported by the active AVPTI Alumni Association.
- **Library Automation:** Fully computerized search, indexing, and circulation powered by **SOUL 3.0 software**.
- **Digital Resource Center:** Equipped with **10 high-speed computer terminals** providing access to open educational databases and the **National Digital Library of India (NDLI)** under the registered NDLI Club (ID: INGJNC592SVAA8E).

C. Student & Residential Facilities

- **Student Hostels:** 3 functional on-campus hostels with an active capacity:
 - *Girls' Hostel:* Capacity of 90 (67 residents)
 - *Marconi Hostel (Boys):* Capacity of 48 (25 residents)
 - *Tagore Hostel (Boys):* Capacity of 70 (40 residents)

- **On-Campus Connectivity:** Fiber-based internet with central servers at the Computer Engineering department and campus-wide **NAMO Wi-Fi offering 100 Mbps high-speed bandwidth.**
- **Campus Security: 45 IP-based CCTV cameras** monitor building corridors, administrative sections, and laboratory facilities.

SECTION 2: VISION, MISSION & CORE VALUES

Official Institute Vision Statement

"To cater skilled engineers having potential to convert global challenges into opportunities through embedded values and quality technical education."

Official Institute Mission Statement

A. V. Parekh Technical Institute is committed to:

- **M1:** Impart quality technical education and prepare diploma engineering professionals to meet the need of industries and society.
- **M2:** Adopt latest tools and technologies for promoting systematic problem solving skills to promote innovation and entrepreneurship.
- **M3:** Emphasize individual development of students by inculcating moral, ethical and life skills.

Institutional Core Values

- **Integrity:** We uphold the highest ethical standards, transparency, and administrative honesty in all academic, financial, and administrative operations.
- **Inclusiveness:** We ensure equitable, affordable, and welcoming access for female students, socioeconomically weaker sections, and Persons with Disabilities (PwDs).
- **Innovation:** We cultivate a startup culture and design thinking, encouraging students to transition final-year capstone ideas into industrial patents and micro-enterprises.
- **Transparency:** We commit to proactive public information disclosure, academic auditing, and maintaining an unambiguous, accessible digital public domain.
- **Professional Ethics:** We instill constitutional values, moral responsibility, and safety discipline into students to shape them into socially responsible global citizens.
- **Lifelong Learning:** We inspire students to continuously upskill and adapt to rapid technological shifts, laying a foundation for continuous career progression.

Summary of Key IDP Initiatives

The 5-Year Institutional Development Plan (2026-2031) outlines a structured roadmap to modernize A. V. Parekh Technical Institute. Key strategic initiatives will focus on transforming classrooms into interactive, smart learning hubs, deploying a unified cloud-based educational ERP system, and consolidating advanced mechatronics, CNC, and 3D printing assets into a centralized Multidisciplinary Innovation and Tinkering Lab. Additionally, the plan implements structured faculty upskilling schemes, expands Student Start-up (SSIP 2.0) and GTU-DIC Spoke activities, launches specialized internal revenue generation (IRG) consulting services for local MSMEs, and scales up social inclusivity and rural outreach programs.

SECTION 3: INSTITUTIONAL SWOC ANALYSIS

The SWOC (Strengths, Weaknesses, Opportunities, Challenges) analysis below synthesizes historical institutional reviews, recent NBA accreditation findings, and semester student feedback audits to establish an honest baseline for targeted developmental initiatives:

Strengths (S)

- **Pioneering Technical Legacy:** Established in 1948, the institute holds high administrative trust and a premier reputation across the state government.
- **Stable Government Subsidization:** Exceptionally affordable education with nominal tuition fees for boys and 100% tuition-fee waivers (zero fees) for female students, promoting massive social equity.
- **Accredited Branch Portfolio:** Solid quality compliance with active branch-wise NBA accreditations across the Computer, Electrical, Biomedical, and Costume Design (CACDDM) departments.
- **Strategic Urban Location:** Situated in central Rajkot city within an active industrial MSME corridor, with excellent municipal transport connectivity.
- **Established Startup & Incubation Roots:** Operating highly active on-campus Student Start-up and Innovation Policy (SSIP) cells and GTU Design Innovation Center (DIC) Spoke centers.
- **Elite Global Alumni Support:** Over 2,500 active Alumni Association life-members serving in elite organizations like ISRO and PRL, or leading multinational giants (Suzlon, TCS, Wipro), providing extensive equipment and scholarship donations.

Weaknesses (W)

- **Rigid Central Affiliated Curriculum:** Affiliation with GTU limits local, rapid updates to branch curricula to match sudden Industry 4.0 changes.
- **Highly Restrictive Financial Transacting:** The Principal's local cash-handling powers are capped at a very low limit (₹500/-), causing operational delays.
- **Long Procurement Turnarounds on GeM:** Relying strictly on the centralized state Government e-Marketplace (GeM) can delay laboratory consumables procurement.
- **Transferable Faculty Staffing:** Standard government service transfer rules without a stable faculty retention policy disrupt departmental continuity and long-term academic mentoring.
- **Civil Infrastructure Maintenance Gaps:** Heavy administrative dependency on the state Roads and Buildings (R&B) Department for critical plumbing and building repairs.
- **Feedback Gaps (Student Audits):** Satisfaction levels regularly flag inadequate sanitation and drinking water (72% satisfaction), library e-resource remote access, basic first-aid/medical spaces (60%), and banking/ATM access (55%).

Opportunities (O)

- **Credit-Linked Skilling Frameworks:** Integrating diploma modules with the National Credit Framework (NCrF) and NSQF to enable seamless credit transfers and Multiple Entry-Multiple Exit (ME-ME) pathways.

- **Rajkot MSME Industrial Hub:** Proximity to major machine tools, auto-components, and textile clusters allows creating high-value, industry-certified skilling partnerships.
- **iHub Extension and Venture Prototyping:** Transitioning the SSIP cell into an active 'Venture Studio' that directly links academic project credits with rapid-prototyping prototyping grants.
- **Departmental IRG Consultancies:** Utilizing specialized equipment (especially in biomedical and instrumentation) to offer paid calibration and testing services to regional businesses, creating a non-grant funding stream.

Challenges / Threats (T)

- **Widening Technology-Curriculum Lag:** The rapid pace of Industry 4.0/5.0 technologies (Applied AI, cyber-physical systems) outstrips centralized university syllabus revision cycles.
- **Declining Enrollment and Branch Bias:** Social prejudice favoring 4-year degree programs over vocational diplomas, coupled with a lack of awareness of niche disciplines like Renewable Energy or Instrumentation.
- **Industry Faculty Onboarding Barriers:** Rigid government pay structures make it difficult to rapidly recruit and retain high-tech instructors against highly competitive private salaries.
- **Central Budget Spending Caps:** Centralized state funding and spending ceilings limit the autonomy and speed of scaling up high-tech digital simulators or VR networks.

SECTION 4: INSTITUTIONAL STRATEGIC ROADMAP

To systematically transition AVPTI Rajkot into a self-reliant, Industry 4.0 learning center, the IDP Institutional Development Plans Committee has formulated a multi-tiered development timeline spanning a 15-Year Strategic Vision Compass, operationalized through short-, medium-, and long-term milestones:

1. Short-Term Milestones: Horizon 1 (Years 1 – 2 | 2026 – 2028)

- Incorporate 100% of students across all eight branches into the Academic Bank of Credits (ABC) portal to enable National Credit Framework (NCrF) alignment.
- Pre-approve a departmental catalog of SWAYAM PLUS and NPTEL MOOCs, allowing students to earn up to 40% of elective credits through online learning.
- Submit Self-Assessment Reports (SAR) to the NBA for the Electronics & Communication and Instrumentation & Control branches to regain active accreditation.
- Transition 10 primary classrooms into high-tech interactive spaces equipped with 75-inch interactive flat panels linked with NAMO Wi-Fi.
- Eradicate critical drinking water and plumbing deficits, targeting a student satisfaction score of >85% in campus audits.
- Submit official material testing, calibration, and consultancy charge sheets to the Commissionerate of Technical Education (CTE) for IRG approval.

2. Medium-Term Milestones: Horizon 2 (Years 3 – 5 | 2028 – 2031)

- Co-design customized micro-credential skilling programs with local Rajkot MSME industrial clusters.
- Achieve 100% NBA accreditation across all eight technical diploma branches.
- Deploy a unified SaaS-based cloud ERP featuring student lifecycle, digital grading, and paperless examination modules.
- Operationalize commercial testing and consulting services across departments to target an annual Internal Revenue Generation (IRG) of ₹10 Lakhs.
- Establish an annual 'Saurashtra Innovation Pitch Day' in partnership with the AVPTI Alumni Association to secure seed capital for student prototypes.

3. Long-Term Milestones: Horizon 3 (Years 6 – 15 | 2031 – 2041)

- Apply for and secure progressive academic autonomy under the UGC Guidelines, allowing independent curriculum design and exam schedules.
- Establish a state-of-the-art, Public-Private Partnership (PPP) modeled Industry 4.0 Common Facility Center (CFC) on campus.
- Transition expensive or hazardous workshop equipment into virtual twins and interactive AR/VR simulator environments.
- Implement a smart solar micro-grid and green campus initiatives to make AVPTI Rajkot a 100% carbon-neutral, green campus.
- Establish a government-recognized, self-funded Technology Business Incubator (TBI) that graduates 3-5 commercial student startups annually.

SECTION 5: INTEGRATED MODERNIZATION SUB-PLANS

5.1 Academic Excellence and Curriculum Modernization Sub-Plan

In alignment with the National Education Policy (NEP) 2020 and UGC IDP Guidelines, AVPTI Rajkot will restructure its academic delivery to prioritize Outcome-Based Education (OBE) and multidisciplinary design frameworks. To foster a flexible credit-based ecosystem, the institute will integrate national digital platforms, bilingual content, and student-centric pedagogies:

- **CBCS, OBE & Multidisciplinary Curriculum Framework:** The institute will implement a progressive Choice-Based Credit System (CBCS) across all branches, allowing students to pursue credit-linked interdisciplinary project-work. Course files and instructional designs will be systematically updated to align with Outcome-Based Education (OBE) descriptors, mapping specific program outcomes (POs) to quantifiable course outcomes (COs).
- **SWAYAM, NPTEL, and National Digital Platforms:** To overcome curriculum rigidity, the Academic Council will pre-approve a catalog of SWAYAM PLUS and NPTEL MOOCs. Students will be authorized to earn up to 40% of their elective credits via these national digital platforms, with earned credits dynamically transferred to the Academic Bank of Credits (ABC).
- **Bilingual Content Delivery and Vernacular Support:** To ensure absolute academic equity and support students from diverse socio-academic backgrounds, lecturers will adopt bilingual content delivery methods. Key technical terms, lab manuals, and lesson slides will be provided in both English and Gujarati (vernacular medium), maximizing comprehension and reducing academic attrition.
- **Student-Centric Pedagogies (PBL, Flipped Classrooms):** The traditional lecture model will transition to active, practice-based learning. Departments will introduce Flipped Classrooms and Problem-Based Learning (PBL) methodologies, requiring students to solve localized industrial bottlenecks, write technical codes, and perform team-based prototyping in labs.

5.2 Infrastructure Upgradation and Digitalization Plan

PROPOSAL FOR CAPITAL FUNDING APPROVAL

Submitted to: Commissionerate of Technical Education (CTE), Government of Gujarat

Drafted by: IDP Institutional Development Plans Committee

Proposed Duration: 3-Year Phased Implementation (A.Y. 2026-27 to 2028-29)

Focus Areas: NEP 2020 Digital Learning Integration, UGC IDP Framework, & AICTE Smart Skilling Standards

5.2.1 Executive Mandate & Persuasive Funding Rationale

A. V. Parekh Technical Institute (AVPTI), Rajkot, established in 1948, represents a premier 75-year-old state-owned engineering polytechnic. Operating under the administrative control of the Commissionerate of Technical Education (CTE), Government of Gujarat, the institute serves as the backbone of industrial workforce

generation in the Saurashtra region. With a robust approved regular and working professional intake of 720 students per academic year across eight major engineering branches, the campus is highly committed to maintaining absolute quality standards. This is validated by AVPTI's extensive National Board of Accreditation (NBA) track record, including current NBA re-accreditation for Computer Engineering (2024-2027) and previously secured accreditations for Electrical, Biomedical, Instrumentation & Control, Electronics & Communication, and Costume Design disciplines.

However, to bridge the massive gap between traditional academic delivery and the automated landscape of Industry 4.0/5.0, AVPTI requires a rapid digital transformation of its learning and administrative spaces. In strict compliance with the University Grants Commission (UGC) Guidelines for Institutional Development Plans and the National Education Policy (NEP) 2020, this proposal details a 3-Year Capital Upgradation Blueprint. By transitioning to smart classrooms, launching a centralized SaaS-based Educational ERP, and scaling our multidisciplinary Tinkering/Innovation Lab, this plan establishes a scalable 'Innovation-to-Enterprise' corridor. This funding request represents an essential investment in the region's technical talent, converting traditional diploma scholars into highly employable, future-ready technical professionals.

5.2.2 Institutional Baseline vs. Proposing Target State

A rigorous internal SWOC audit and stakeholder feedback sessions conducted by the IQAC have highlighted several critical physical and digital gaps on campus. The table below matches our current infrastructure baseline directly to the target modernization states mandated by UGC digital enabler frameworks:

Infrastructure Area	Current Baseline Status	Proposed Target State (UGC/NEP Standard)
Classroom Pedagogy	22 standard classrooms with blackboard teaching. Modern multimedia tools and interactive displays are restricted to specific departmental seminar halls.	100% smart classroom adoption. Deployment of 75-inch interactive panels, dual-band Wi-Fi connectivity, and cloud-integrated lecture capture systems.
Administrative Control	Fragmented, localized administrative processes. Examination and student records are maintained manually or using disparate standalone spreadsheets.	Centralized cloud-based Education ERP integrating Student Lifecycle Management, Paperless Examinations, Online Fee Gateways, and RFID security.
Skilling & Prototyping	Separate departmental labs; central workshop with traditional machine tools. Innovation is confined to branch-specific silos with restricted cross-talk.	Establishment of a centralized Multidisciplinary Innovation Lab and FabLab MakerSpace, equipped with 3D printers, IoT testbeds, and rapid PCB prototyping units.
Digital Library Access	Central Library utilizing SOUL 3.0 on an intranet-only database. 24/7 remote electronic journal or digital content portal accessibility is completely absent.	Deployment of a cloud-synced Digital Library repository. Remote VPN access to global databases and active, campus-wide integration of the NDLI Club.

5.2.3 Strategic Pillar 1: Smart Classroom Transition Blueprint

To shift pedagogy from passive listening to highly interactive, student-centric learning as envisioned by the UGC, AVPTI will undergo a systematic transition of its 22 classrooms over three years. The smart classroom setup leverages our existing fiber-based campus wide network with BSNL and GTPL fiber backbone, integrating robust physical and cloud hardware:

- **Interactive Interactive Panels:** 75-inch UHD 4K Interactive Flat Panels (IFPs) featuring multi-touch capability, dual OS (Android/Windows), integrated screen-casting, and cloud whiteboarding for seamless digital annotations.
- **Hybrid Lecture Capture:** Installation of high-definition PTZ camera rigs coupled with ceiling-mounted boundary microphones in 6 primary lecture theatres to support a hybrid lecture delivery and automated Lecture Capture System (LCS).
- **Ubiquitous Bandwidth Integration:** Utilization of our active high-speed NAMO Wi-Fi facility, which has campus-wide coverage providing 100 Mbps + 100 Mbps dual-line bandwidth backed by BSNL and GTPL fiber lines.
- **Digital Teacher Podiums:** Providing faculty with central touch-interactive digital podiums housing integrated computer systems, visualizers, and central audio controllers connected to high-efficiency classroom speakers.

5.2.4 Strategic Pillar 2: Unified Cloud-Based ERP System

The current absence of an integrated campus ERP represents an administrative bottleneck. AVPTI proposes the procurement of a centralized, secure, SaaS-based Education ERP to automate entire institutional workflows, complying with UGC digital campus directives:

- **Student Lifecycle Management:** An end-to-end portal tracking student metrics from admission, choice-based credit mapping (NCrF/ABC aligned), fee collection via integrated secure UPI and net banking gateways, to digital leaving certificates.
- **Paperless Examination Module:** Digital question bank generation, secure online marks entry, automated progress report generation, and absolute paperless exam processing to eliminate physical overheads and accelerate timelines.
- **RFID Attendance and Asset Tracking:** Deployment of RFID-based smart student identity cards, integrating with physical entry gates, automated class attendance trackers, and real-time inventory tracking for high-value lab equipment and computers.
- **Administrative Analytics Dashboard:** A real-time dashboard for the Principal and DTE Gandhinagar to monitor resource utilization, capital expenditures, faculty performance appraisal index (API) scores, and student enrollment trends.

5.2.5 Strategic Pillar 3: Centralized Multidisciplinary Innovation & Tinkering Lab

AVPTI has a solid foundation for innovation. The institute successfully secured and fully utilized a CSR Grant of ₹35.07 Lakhs from Paschim Gujarat Vij Company Ltd. (PGVCL) for laboratory modernization and

student innovation. This grant facilitated the procurement of interactive smartboards, advanced mechatronics kits, a 3D scanner, and a heavy CNC turning machine. Currently, the Student Start-up and Innovation Policy (SSIP 2.0) Cell and the GTU Design Innovation Center (DIC) Spoke support active student-led projects, reaching over 1,000 students.

To maximize this momentum, the IDP proposes consolidating these assets into a single centralized Multidisciplinary Innovation and Tinkering Lab (MakerSpace) accessible by all departments. Rather than isolating equipment in individual departmental vaults, this unified lab will feature distinct zones designed to scale up prototyping and early-stage startups:

- **Rapid Prototyping Zone:** Housing the PGMVCL CNC machine, rapid 3D printers, laser cutters, and professional design software. Allows students from Biomedical, Electrical, and Costume Design to collaborate on physical enclosure fabrication.
- **Semiconductor & VLSI Design Station:** Equipped with C-DAC FPGA development boards, embedded IoT kits (Raspberry Pi/ESP32), microcontrollers, and high-frequency RF testing instruments, facilitating advanced chip and wireless sensor designs.
- **Applied AI & Simulation Hub:** A dedicated co-working zone featuring high-speed digital systems, specialized AI modeling software, and simulation environments (MATLAB, Multisim, CLO3D) to train students in applied AI, mechatronics, and smart apparel design.
- **Venture Studio & IP Cell:** Integrating patent filing assistance under SSIP 2.0 and establishing direct pitch pathways to our extensive 2,500+ AVPTI Alumni Association to secure early-stage angel investments and mentor support.

5.2.6 Year Implementation Roadmap & Capital Budget Estimate

The following implementation Gantt and budget roadmap details the systematic deployment of these three pillars, structured to ensure optimal resource absorption and absolute accountability:

Year	Core Deliverables & Pillars Targeted	Key Milestone Expected	Estimated Cost (INR in Lakhs)
Year 1 (A.Y. 2026-27)	• Procure and install 75-inch Interactive Panels in 10 classrooms. • Initiate centralized cloud-based ERP setup (academic lifecycle module). • Build a physical centralized Tinkering Lab housing existing PGVCL CNC and 3D scanners.	Complete digital integration of first-year classrooms; paperless student registration system fully operational.	35.00
Year 2 (A.Y. 2027-28)	• Equip remaining 12 classrooms with Interactive Flat Panels. • Roll out ERP paperless examinations and online fee gateway modules. • Procure advanced IoT and FPGA kits for semiconductor station.	100% smart classrooms achieved; completely cashless fee collection and secure digital exams active.	42.00
Year 3 (A.Y. 2028-29)	• Launch RFID identity cards for attendance and real-time IT asset tracking. • Procure advanced cloud virtualization licenses and simulation software • Formalize joint industrial skilling boot camps with local MSME and NSIC partners inside the Tinkering Lab.	Fully automated smart campus; 5+ student prototypes transitioned to SSIP 2.0 patent filing or micro-startups.	23.00

Total Estimated 3-Year Capital Outlay: ₹100.00 Lakhs. This investment is critical to fulfilling the NEP 2020 mandates. The recurring OPEX (estimated at ₹4.5 Lakhs annually starting in Year 2) will be fully covered by the institute's proposed Internal Revenue Generation (IRG) scheme, which commercializes laboratory consultancy and testing services to regional MSMEs in the Rajkot industrial belt.

5.3 Faculty Development and Capacity Building Plan

A 3-Year Strategic Framework for Instructional Quality, National Education Policy Alignment, and Emerging Industry 4.0 Technologies (2026–2029)

Executive Mandate: This section operationalizes the UGC Institutional Development Plan guidelines on human resource management. It establishes a systematic strategy to continuously upskill the institute's teaching staff, implement structured pedagogical evaluations, and integrate national-level educational frameworks to elevate academic and technical skilling standards.

5.3.1 Institutional Faculty Baseline and Governance Model

A. V. Parekh Technical Institute possesses a highly qualified and stable teaching cohort that serves as the cornerstone for its quality technical education. As of the latest survey audits, the institute has a sanctioned strength of 101 posts, with 84 active faculty members in position, representing an exceptionally strong 84% vacancy fill rate. This teaching cadre comprises 11 Lecturers (Selection Grade), 5 Lecturers (Senior Scale), and 68 Lecturers distributed across eight departments and humanities divisions. This high level of staff stability supports robust academic mentorship, maintaining an institutional Student-to-Faculty Ratio (SFR) of 16:1, which easily surpasses the AICTE-mandated benchmark of 25:1 for engineering diploma institutions.

As a state government institution, recruitment of regular faculty members is conducted by the Gujarat Public Service Commission (GPSC) through formal competitive evaluations. All service rules, administrative procedures, and promotional frameworks are governed centrally under the guidelines established by the Commissionerate of Technical Education (CTE), Gandhinagar, and the Education Department of the Government of Gujarat. This structured state backing provides career stability and standardized pay scales. Upon recruitment, all newly onboarded technical lecturers undergo the mandatory Induction Training Program provided by the DTE Gandhinagar, which equips them with basic effective teaching pedagogies, academic record-keeping standards, and administrative guidelines.

5.3.2 Performance Appraisal, Student Feedback, and Mentorship Loops

To ensure continuous improvement in instructional quality, the institute implements a comprehensive and confidential Student Feedback Collection and Analysis Process. Managed by department-level committees led by the respective Heads of Department (HODs), students evaluate course instructors once per semester. This feedback is structured around key parameters such as subject preparation, communication, timely completion of the syllabus, and use of modern pedagogical tools. The evaluation uses a 5-point scale (5 - Excellent, 4 - Very Good, 3 - Good, 2 - Satisfactory, and 1 - Fair). The consolidated feedback is formally assessed by the Department Advisory Committee (DAC).

- **Appreciation Threshold:** Faculty members who achieve a Faculty Performance Index (FPI) average score exceeding 3 out of 5 are categorized as 'Good' or outstanding. Their instructional dedication is formally appreciated by the HOD and recorded in their annual performance reviews.
- **Corrective Actions Threshold:** If a faculty member's average score falls below the standard benchmark of 3 out of 5, their performance is flagged as 'Needs to be Improved'. The HOD initiates a private, constructive counseling session to guide them on areas requiring improvement.

- **Mentorship and Upskilling Support:** Flagged faculty are paired with senior subject experts within the department for peer mentorship and instructional guidance. They are also strongly advised and sponsored to attend specific Faculty Development Programs (FDPs) and enroll in specialized MOOC platforms (NPTEL/SWAYAM) to upgrade their delivery methods.

Career progression is managed through the state government's Career Advancement Scheme (CAS) and the Academic Performance Indicator (API) scores, which are updated annually using the official Performance Based Appraisal System (PBAS) folders maintained in the establishment section. This system ensures that faculty promotions are tied to academic contributions, student-centric project guidance, and continuous professional upskilling.

5.3.3 Continuous Upskilling and National Framework Integration

The UGC Institutional Development Plan guidelines emphasize the rapid onboarding of faculty onto national educational frameworks to foster a seamless credit-based ecosystem. Over the 3-year plan, AVPTI will implement mandatory, centralized capacity-building and refresher programs focusing on four critical national enablers:

- **National Credit Framework (NCrF) Operationalization:** Training all department coordinators on credit assignments for classroom instruction, practical laboratory sessions, vocational skilling, and mandatory industry internships.
- **Academic Bank of Credits (ABC) Portal Management:** Ensuring all faculty advisors are equipped to assist students in ABC registration, credit accumulation, and mapping multiple entry-multiple exit (ME-ME) pathways.
- **National Skill Qualification Framework (NSQF) Integration:** Aligning diploma-level practical courses with the standardized level descriptors of the NSQF, allowing student qualifications to correspond to national vocational standards.
- **Indian Knowledge System (IKS) and Vernacular Delivery:** Upskilling faculty to incorporate historical Indian engineering accomplishments into technical Curricula and supporting bilingual or vernacular medium deliveries to assist diverse student groups.

Additionally, technical faculty members will be required to participate in the AICTE Training and Learning (ATAL) Academy's flagship Faculty Development Programs. These FDPs will focus heavily on emerging, tech-heavy Industry 4.0 and 5.0 concepts—such as Applied Artificial Intelligence, Internet of Things (IoT), cyber-physical systems, mechatronics, renewable energy systems, and advanced semiconductor/VLSI design. This targeted training ensures that instructors can effectively utilize advanced technological facilities, including the CTE-Sponsored AI Lab and the CDAC-affiliated VLSI center.

5.3.4 Research Support, Higher Studies, and Innovation Leadership

To elevate the polytechnic's overall research profile, the institute actively supports faculty members in pursuing higher academic qualifications. Currently, while entry-level lecturers hold bachelor's degrees in engineering, the vast majority of technical faculty members hold postgraduate master's degrees (M.E./M.Tech), and several senior staff members across key departments—such as the IT/Computer and General Science divisions—possess doctoral degrees (Ph.D.). Under the 3-year IDP, the institute will establish a formal 'Research and Doctoral Sponsorship Policy'. Under this scheme, eligible lecturers will be supported with study leaves, flexible teaching schedules, and research coordination to complete part-time or full-time doctoral research at Gujarat Technological University (GTU) or other premier institutions.

Faculty members are also encouraged to lead student-centric innovations by integrating their academic research with practical prototyping. Technical staff will act as official innovation mentors under the Student Start-up and Innovation Policy (SSIP 2.0) cell and the GTU Design Innovation Centre (DIC) Spoke. Faculty mentors will assist student groups in securing prototyping grants, filing patents for technical designs, and establishing joint research clusters. Furthermore, leveraging their domain expertise, faculty members are encouraged to offer commercial consultancy, testing, and sensor calibration services to local MSMEs in the Rajkot industrial corridor, with a portion of the resulting internal revenue allocated directly to support departmental research assets.

5.3.5 Year Faculty Capacity Building Action Plan (2026–2029)

Timeline	Strategic Activity / Refresher Program	Target Cohort	Expected KPI Outcome
Year 1 (A.Y. 2026-27)	- State DTE-backed Induction Training for newly onboarded lecturers. - Advanced FDPs in NCrF, NSQF, and ABC portal operations.	All newly recruited and pre-final-year lecturers.	100% of newly recruited staff complete basic pedagogy induction. 100% of departments have functional credit-mapping coordinators.
Year 2 (A.Y. 2027-28)	- ATAL FDPs in emerging domains (Applied AI, cyber-physical systems, VLSI sensor designs). - Refresher courses on Indian Knowledge System (IKS) integration.	Middle-level Lecturers and Senior Grade Lecturers.	- Minimum of 15 faculty members certified in Industry 4.0 domains. - Technical assignments incorporating historical IKS designs introduced.
Year 3 (A.Y. 2028-29)	- Advanced doctoral research sponsorship and part-time Ph.D. registration drives. - Technical training on commercial lab testing and industrial consultancy.	Master's-qualified Lecturers and HODs.	5 additional technical faculty members registered for Ph.D. studies. - Functional departmental consultancy cells active, generating first IRG streams.
Annual / Continuous	- Semester-wise student feedback analysis and subsequent DAC performance audits. - Annual PBAS / CAS folder assessment for career promotions.	100% of Technical and General Faculty.	- Individualized counseling executed within 15 days of feedback consolidation. 100% of eligible promotions processed on time.

5.4 Research, Innovation, and Startup Ecosystem Plan

Transforming Traditional Diploma Project-Work into a Product-Driven Venture Pipeline

Mandated by the National Education Policy 2020 and aligned with the UGC Guidelines for Institutional Development Plans (IDP), the research, innovation, and startup ecosystem at A. V. Parekh Technical Institute (AVPTI), Rajkot is structured to bridge the gap between classroom theory and real-world commercialization. Moving away from static final-year academic projects, the institute is institutionalizing an integrated 'Innovation-to-Enterprise' (I2E) Corridor that aligns student-led ideation with advanced prototyping, robust incubation funding, and regional MSME market access.

5.4.1 Executive Framework: The Innovation-to-Enterprise (I2E) Corridor

To maximize the impact of national and state technical mandates, AVPTI Rajkot has designed a continuous, four-stage pipeline termed the 'Innovation-to-Enterprise' (I2E) Corridor. Rather than allowing academic departments to operate in isolation, this corridor integrates the institute's cutting-edge software and hardware assets to provide students with an end-to-end pathway from conceptualization to commercial deployment:

- **Stage 1: Ideation & Design (CTE AI Lab & GTU-CDAC Facility):** Students initiate their technical concepts utilizing the newly proposed Commissionerate of Technical Education (CTE) Applied AI & Analytics Hub and the GTU-affiliated C-DAC Chip Development and RF-VLSI Facility. These systems allow multi-disciplinary student teams to design software algorithms, train predictive machine learning models, and draft hardware firmware (ARM/RISC-V) concurrently.
- **Stage 2: Rapid Prototyping (PGVCL Prototyping MakerSpace):** Designed concepts are rapidly materialized in the centralized Prototyping MakerSpace. This facility leverages advanced CNC machinery, mechatronics training setups, and 3D scanners procured through the PGVCL Corporate Social Responsibility (CSR) grant, enabling high-precision fabrication of physical components.
- **Stage 3: Incubation & Business Modeling (SSIP 2.0 & iHub Extension):** Once a functional Proof of Concept (PoC) or Minimum Viable Product (MVP) is verified, the project transitions to the Student Start-up and Innovation Policy (SSIP) Cell. The cell provides direct financial grants for prototyping, legal assistance for Intellectual Property Rights (IPR) and patent filing, and co-working space support within the on-campus incubation room.
- **Stage 4: Commercial Deployment (Udyog-Academia MSME Solution Clinic):** The final product is validated, tested, and deployed in collaboration with regional MSME networks and National Small Industries Corporation (NSIC) partners in the Rajkot industrial corridor. This clinic actively sources real-world industry bottlenecks, allowing students to resolve live shop-floor problems while generating non-tuition consultancy revenue.

5.4.2 Active Innovation Enablers: SSIP 2.0 Cell & GTU-DIC Spoke

The primary operational catalysts driving student entrepreneurship at AVPTI are the Student Start-up and Innovation Policy (SSIP) Cell (acting as a state grantee institution) and the GTU Design Innovation Centre (DIC) Spoke. Funded by the Ministry of Education, Government of India, the DIC Spoke provides design-centric mentorship and specialized equipment, while the SSIP cell channels direct state funding to student innovators.

SSIP Management Committee: To ensure structured financial screening and professional mentorship, the cell is governed by an active management committee & Departmental coordinator. The historical outcomes

achieved under the joint SSIP and GTU-DIC Spoke framework reflect a strong baseline of student outreach and hands-on participation. This baseline is detailed in Table 5.1 below:

SSIP / DIC Key Performance Indicator	Current Cumulative Outcome	Socio-Academic Impact
Total Students Outreached	1,000+ Students	Widespread sensitization workshops across all eight branches.
Total Students Involved	60 Active Students	Core innovators engaged in continuous prototyping & incubation.
Workshops & Bootcamps Conducted	12 Programs	Covering IoT, semiconductor design, and Arduino programming.
Total Prototyping Funds Sanctioned	Rs. 5.63 Lakhs	Direct financial support for project materials and testing.
Total Funds Utilized on PoCs/IPR	Rs. 3.44 Lakhs	Transparent disbursement under strict GTU audit guidelines.
Active Project Mentors	9 Faculty Members	Departmental subject-matter experts guiding technical design.
Gujarat State Hackathon Participants	20 Students	Competitive exposure at the state level under GTU.
Smart City Hackathon Participants	50 Students	Developing municipal and civic IoT hardware solutions.
Startup Conclave Participation	1,200+ Visitors	Showcasing student-built drones and smart fabrics.

To scale these outcomes under the IDP, the institute's strategic goal is to maximize the utilization of state-allocated grants. A historical financial audit of the SSIP and DIC budgets (as detailed in Table 5.2) indicates that while the DIC funding has been heavily utilized for physical modernization, the SSIP funds possess substantial head-room to support aggressive new student startups in the coming three years:

Grant Scheme	F.Y. 2020-21 (Utilized)	F.Y. 2021-22 (Utilized)	F.Y. 2022-23 (Utilized)	F.Y. 2023-24 (Utilized)
SSIP Grant Allocation	Rs. 0.00	Rs. 0.00	Rs. 4.00 Lakhs (Rs. 3.30k Utilized)	Rs. 3.967 Lakhs (Rs. 1.60 Lakhs Utilized)
DIC Grant Allocation	Rs. 23.84 Lakhs (Rs. 5.86 Lakhs Utilized)	Rs. 17.72 Lakhs (Rs. 9.93 Lakhs Utilized)	Rs. 7.79 Lakhs (Rs. 3.88 Lakhs Utilized)	Rs. 4.05 Lakhs (Rs. 11.46k Utilized)

5.4.3 Industrial Capitalization: Leveraging the PGVCL CSR Prototyping Assets

A major competitive advantage of AVPTI is its status as a highly trusted state institution, allowing it to secure external capital funding. In F.Y. 2022-23, the institute secured a prestigious Corporate Social Responsibility (CSR) grant of **Rs. 35,07,000/- (Rupees Thirty-Five Lakhs Seven Thousand Only)** from Paschim Gujarat Vij Company Limited (PGVCL) under reference letter PGVCL/CSR Cell/187. This grant was fully utilized to procure high-end machinery and smart equipment, transforming the traditional central workshop into a state-of-the-

art Rapid Prototyping MakerSpace. This equipment is integrated directly with the I2E Corridor to serve as the primary hardware core for student-led startups:

Procured Equipment / Tool	Quantity	Exact Expenditure (INR)	Primary Role in Student Prototyping
CNC Turning Machine & Stabilizer	01 Unit	Rs. 22,10,000/-	High-precision fabrication of mechanical prototypes and housings.
Interactive White Board	10 Units	Rs. 2,95,000/-	Facilitating collaborative design thinking and digital pitches.
Multi-Media Projectors	08 Units	Rs. 4,25,304/-	Interactive teaching and tech-seminar visual delivery.
Spectrum Analyzer	01 Unit	Rs. 2,14,990/-	RF engineering testing and high-frequency antenna analysis (EC branch).
Digital Storage Oscilloscope	01 Unit	Rs. 77,990/-	Signal testing, sensor calibration, and embedded hardware debugging.
Jetson Nano 4GB Modules	03 Units	Rs. 68,700/-	Edge computing and localized Machine Learning algorithm testing.
3D Scanner	01 Unit	Rs. 64,500/-	Reverse engineering, spatial mapping, and CAD model generation.
Multi-Media Projectors (Small)	02 Units	Rs. 97,776/-	Setup of portable incubation meeting rooms.
Drilling Machine	01 Unit	Rs. 31,400/-	Central workshop support for sheet metal and frame preparation.
Grinder	01 Unit	Rs. 23,000/-	Material finishing and structural welding preparation.
Copper Wire 6mm	Consumable	Rs. 1,570/-	Dedicated power panel wiring for the high-capacity CNC turning machine.

5.4.4 The "Diamond Legacy" Alumni Mentorship & Angel Network

To support student ventures at zero operational cost, the IDP proposes to fully systematize AVPTI's extraordinary alumni assets. Operating continuously since 1948, the AVPTI Alumni Association boasts over 2,500 life members. Prominent alumni serve in leading national space and defense programs (such as ISRO, PRL, the Indian Navy, and RAW) and hold senior executive roles in global corporations (including Suzlon, Wipro, and TCS). The IDP outlines three specific programs to leverage this legacy:

- **Alumni-in-Residence (AiR) Program:** Distinguished technical experts and entrepreneurs will be invited to the Rajkot campus for 1 to 2-week residencies. Utilizing the PGVCL-funded smart classrooms, they will deliver advanced hands-on boot camps on cutting-edge subjects (e.g., semiconductor VLSI design, applied drone aviation, and embedded machine learning), keeping students current with industrial trends.
- **SSIP Angel Syndicate:** The institute will host an annual 'Saurashtra Innovation Pitch Day' in the TPO seminar rooms. Graduating student startups from the SSIP Cell will present their MVPs to a panel of successful entrepreneurial alumni. This syndicate will provide early-stage equity funding, joint-venture partnerships, and access to industrial markets to transition student prototypes into sustainable micro-enterprises.

- **D2D Mentorship Mapping:** To assist students aiming for higher technical education, the alumni network will establish a structured, online mentoring framework. This program will map current diploma students with alumni who successfully traversed the Diploma-to-Degree (D2D) pathway to secure elite engineering degrees, providing personalized career counseling and academic prep mentorship.

5.4.5 Year Strategic Implementation Roadmap (2026-2029)

To operationalize this ecosystem, the IDP Committee has structured a 3-year phased implementation plan to ensure full alignment with UGC quality guidelines and DTE Gandhinagar audit standards. This plan is detailed in Table 5.4 below:

Strategic Initiative	Key Activities	Target Year	Key Performance Indicator (KPI)
Establish CTE AI & Applied Analytics Hub	• Procure and set up high-performance GPU server racks in the computer department. • Deploy simulation licenses. • Launch interdisciplinary AI projects across Electrical, Biomedical, and Costume Design branches.	Year 1	• Central AI Hub operational. • 100% of final-year projects in Smart Energy and Bio-Wearables utilize predictive AI modeling.
Launch GTU CDAC Semiconductor VLSI Lab	• Coordinate with C-DAC to establish an authorized RF-VLSI chip design laboratory. • Acquire VLSI and FPGA development board starter kits. • Offer evening micro-credentials for student-led hardware startups.	Year 2	• VLSI lab fully operational. • >50 students certified annually in NCrF-aligned chip design modules.
Scale SSIP 2.0 & Launch Angel Pitch Days	• Operationalize the on-campus Incubation Center. • Execute formal annual Pitch Days involving the AVPTI Alumni Association life-members. • Coordinate with iHub and state venture funds to secure commercial market entries.	Year 3	• Secure at least 5 registered patent/IPR filings. • Successfully transition 3 student prototypes into registered, venture-backed micro-enterprises.

5.5 Industry Linkages and Resource Mobilization Plan

A. V. Parekh Technical Institute (AVPTI), Rajkot, operating as a state government-run diploma engineering college, recognizes that academic modernization and sustainable growth require robust external partnerships and institutional self-reliance. In alignment with the National Education Policy (NEP) 2020 and the University Grants Commission (UGC) Guidelines for Institutional Development Plans (IDP), this roadmap transitions AVPTI's technical departments from centralized cost centers into active, value-generating partners within the regional industrial ecosystem. By leveraging our 75-year-old institutional legacy situated in the Saurashtra manufacturing corridor, we propose four concrete, low-cost Internal Revenue Generation (IRG) initiatives to mobilize resources, upgrade laboratory infrastructure, and enhance diploma student employability.

5.5.1 Institutional Framework for Resource Mobilization

To achieve self-reliance as outlined in Annexure B of the UGC IDP Guidelines, AVPTI will formalize a dedicated Resource Mobilization and IRG Cell under the Guidance of the Principal. This cell will oversee the transition of high-value departmental assets into revenue-generating consulting and training modules, with income reinvested directly into student welfare, laboratory maintenance, and cutting-edge software licensing. Historically, AVPTI's operations have been funded almost entirely by the state government's Integrated Financial Management System (IFMS) grants (which exceeded Rs. 20.63 Crores in FY 2023-24). Introducing structured IRG programs ensures that the institute builds non-tuition, non-grant funding streams to sustain advanced laboratory systems, such as our active Student Start-up and Innovation Policy (SSIP 2.0) Cell and GTU Design Innovation Center (DIC) Spoke.

UGC Policy Alignment Note: UGC IDP Guidelines mandate that Higher Education Institutions establish departmental IRG schemes based on: (1) Commercial Utilization of existing infrastructure, (2) Consultancy services, and (3) Structured professional skilling programs. Revenue generated will be managed through an institutional account under the supervision of a dedicated Financial/Investment Committee to support self-sustaining operational models.

5.5.2 Strategic Internal Revenue Generation (IRG) Interventions

Initiative A: Commercial Calibration and Testing Services for Regional MSMEs

AVPTI Rajkot is located in a prominent manufacturing cluster for automotive components, engine pumps, and medical devices. The Instrumentation & Control (IC) Engineering and Biomedical Engineering (BME) departments possess specialized, industrial-grade testing setups and measurement instrumentation. Through this initiative, we will commercialize these laboratories to offer subsidized material testing, sensor calibration, and clinical hardware safety testing for local manufacturing MSMEs and regional hospitals. For instance, the IC department will provide high-precision pressure gauge and temperature controller calibration, while the BME department can perform electrical safety audits and diagnostic telemetry validation for local healthcare clinics using our existing specialized biomedical testing trainers.

Initiative B: Specialized CNC Machining and Rapid Prototyping Services

Our central workshops and Design Innovation Centre (DIC) Spoke were recently modernized utilizing a highly successful Rs. 35.07 Lakhs Corporate Social Responsibility (CSR) grant from Paschim Gujarat Vij Company Limited (PGVCL). Key assets procured under this project include a state-of-the-art CNC Turning Machine (6 mm), mechatronics and actuator trainers, and a high-definition 3D Scanner. AVPTI will leverage this infrastructure to offer low-cost rapid prototyping, reverse engineering, and precision mechanical job-work services to local machine tool manufacturers and industrial innovators. This project-based service will be operated by final-year mechanical, electrical, and IC diploma students under faculty supervision, generating revenue while providing students with live shop-floor skilling experience.

Initiative C: Industry-Sponsored Short-Term Training & Working Professional Batches

To satisfy the local industrial demand for Industry 4.0 skilled labor, AVPTI will leverage its classrooms and laboratory infrastructure to launch weekend and evening Short-Term Training Programs (STTPs) for corporate executives and local technicians. These programs will be aligned with the National Skill Qualification

Framework (NSQF) to enable formal credit accumulation. We will offer dedicated modules such as: (1) Industrial Automation, PLC-SCADA, and Distributed Control Systems (DCS) for process plant technicians, (2) Embedded C Programming & IoT Sensor Integration for hardware designers, and (3) Grid-tied Solar PV Rooftop Installation and Wind Energy systems for renewable sector personnel. Additionally, the institute will fully capitalize on the recently approved AICTE intakes for Working Professionals (such as the approved intake of 30 seats in Electrical Engineering and 30 in Instrumentation & Control Engineering) to run fee-paying, industry-sponsored evening cohorts.

Initiative D: Apparel CAD Prototyping and Pattern Design Consultancy

Rajkot and neighboring cities like Jetpur constitute a prominent textile manufacturing and block printing cluster in Gujarat. The Computer Aided Costume Design and Dress Making (CACDDM) branch at AVPTI houses specialized design software licenses, digitizers, and apparel pattern-making CAD workstations. This initiative proposes establishing an 'Apparel CAD and Textile Consultancy Clinic.' The clinic will offer professional pattern grading, digital fabric print design, and computerized 3D apparel prototyping services (using tools like CLO3D) to regional garment exporters, textile printing units, and local fashion entrepreneurs. This consulting model will run on a fee-for-service basis, utilizing our digital design labs outside standard academic hours.

5.5.3 Year Financial and Operational Target Matrix

The following matrix outlines the projected revenue growth and departmental responsibilities for each of the four strategic IRG programs over the next five years (2026–2031). Targets are scaled realistically based on existing lab capacities:

IRG Program / Initiative	Lead Department	Key Laboratory Infrastructure	Annual Revenue Target (Year 1)	Annual Revenue Target (Year 5)
Industrial Calibration & Medical Safety Testing	Instrumentation (IC) & Biomedical (BME)	Process Variable Benches & Biomedical Safety Analyzers	Rs. 1.5 Lakhs	Rs. 4.5 Lakhs
CNC Machining & Rapid Prototyping Services	Workshop / DIC Spoke / Mechanical	PGVCL-funded CNC Turning, 3D Scanners & CAD	Rs. 2.0 Lakhs	Rs. 5.5 Lakhs
Industry Short-Term Training & Working Batches	Electrical (EE), IC, EC & Renewable	Smart Classrooms, PLC Lab & Rooftop Solar PV Grid	Rs. 2.5 Lakhs	Rs. 7.5 Lakhs
Apparel Pattern Making & CAD Consulting	Costume Design (CACDDM)	Textile CAD Lab, Optitex/CLO3D, Digital Fabric Printers	Rs. 1.0 Lakh	Rs. 3.0 Lakhs

5.5.4 Integration with Alumni Network & Placement Ecosystem

The operational success and industry reach of these IRG programs will be accelerated by AVPTI's highly active Alumni Association (boasting over 2,500 life members since its establishment in 1997). Alumni serving as leading executives and entrepreneurs in prominent firms (e.g., Suzlon, Wipro, TCS) will act as primary industry liaisons. They will facilitate corporate MoUs, steer technical problem definitions for prototyping services, and promote AVPTI's calibration and testing capabilities to their industrial networks. Additionally, a dedicated portion of the IRG revenue will be channeled back to support merit-cum-means scholarships for socioeconomically weaker students (expanding upon our traditional family donations like the Shri S R Murti scholarship of Rs. 2,00,000/-), establishing a socially inclusive cycle of growth and self-sustainment.

5.6 Skilling and Employability Plan

A. V. Parekh Technical Institute will systematically prioritize student skilling and holistic employability as core pillars of its technical mandate, strictly aligning its vocational and finishing programs with the National Education Policy (NEP) 2020 and AICTE guidelines:

- **NSQF-aligned programs:** The institute will ensure that all laboratory and practical training modules correspond directly to the standardized skill levels outlined in the National Skill Qualification Framework (NSQF). This credit-mapping aligns student capabilities with national industrial criteria.
- **Sector Skill Councils partnerships:** To fast-track professional employability, individual branches will execute joint MoUs with national Sector Skill Councils (SSCs) to introduce certification-based vocational modules, ensuring students gain specialized credentials recognized across their industries.
- **Apprenticeships under NAPS:** Through the Training and Placement Cell, final-year and graduating diploma scholars will be actively transitioned into corporate apprenticeship roles under the National Apprenticeship Promotion Scheme (NAPS) and National Apprenticeship Training Scheme (NATS), fostering robust industrial-experiential bridges.
- **Skill gap analysis & regional MSME alignment:** The institute will coordinate with the Rajkot MSME machine tools and auto-parts industrial corridor to conduct bi-annual skill gap analyses. These data-driven reviews will allow the Department Advisory Committees (DACs) to fine-tune curricular lab exercises and student capstone projects to address localized engineering bottlenecks.
- **Finishing School Program:** To boost soft skills, professional writing, and language proficiency, the institute will leverage its Knowledge Consortium of Gujarat (KCG) Finishing School grants (holding a carry-forward balance of ₹7,69,350/- as of March 31, 2024) to conduct comprehensive 80-hour training camps led by certified mentors.

5.7 Accreditation Readiness Plan

To establish absolute academic accountability and validate its pedagogical quality, AVPTI Rajkot enforces a rigorous, continuous accreditation readiness plan governed by the Internal Quality Assurance Cell (IQAC):

- **NBA & NAAC Strategic Pathway:** The institute will maintain active National Board of Accreditation (NBA) certification for its major branches (including current Computer Engineering re-accreditation for 2024-2027, and previously accredited disciplines). The IQAC will fast-track Self-Assessment Report (SAR) submissions for ICT & Renewable Program.
- **Continuous Academic & Administrative Audit (AAA) under IQAC :** The Academic Planning and Inspection Committee will conduct monthly internal audits of course portfolios, laboratory engagement levels, lesson plan executions, and student attendance sheets, ensuring consistent audit compliance.
- **Stakeholder Feedback and Quality Circles:** The Mentoring & Feedback Committee will manage 360-degree feedback loops. In instances where an instructor's evaluation index falls below 3 out of 5, the department HOD will conduct private counseling, peer mentoring, and recommend ATAL FDP upskilling to close the quality gap.

5.8 Alumni Engagement and Endowment Management Plan

Capitalizing on a 75-year legacy and a massive global alumni network, the institute will formalize a comprehensive engagement strategy to leverage alumni expertise and philanthropic power:

- **Cloud-Based Automated Alumni Portal:** The institute will launch a dedicated AVPTI Alumni Portal to serve as an automated registry tracking alumni designations, locations, and trajectories. It will feature job-referral boards and mentorship-matching tools, enabling alumni from organizations such as ISRO, PRL, Suzlon, Wipro, and TCS to directly interact with student groups.
- **Alumni Endowment Creation & CSR Mobilization Policy:** To build non-grant financial assets, the institute will operationalize a strict Standard Operating Procedure (SOP) to manage the AVPTI Alumni Endowment Fund under joint Principal and Alumni Association custody. The fund will receive philanthropic corporate CSR and individual donations (building on precedents like the Shri S. R. Murti family scholarship of ₹2,0,000/-) to support laboratory upgrades and student scholarships.
- **Alumni-Led Mentorship & Angel Syndicate:** The 'Alumni-in-Residence' (AiR) program will sponsor technical experts for on-campus technical boot camps. Additionally, an annual 'Saurashtra Innovation Pitch Day' will be hosted, where graduating student startups from the SSIP Cell will pitch their prototypes directly to alumni angel syndicates for seed capital.

5.9 Inclusivity and Outreach Plan

Section 8 of the Institutional Development Plan (IDP) for Gujarat Higher Technical Education

Executive Mandate:

In alignment with the National Education Policy (NEP) 2020 and the self-regulating guidelines stipulated by the University Grants Commission (UGC) for Institutional Development Plans, A. V. Parekh Technical Institute (AVPTI), Rajkot, is committed to establishing a fully inclusive, equitable, and socially integrated campus. By leveraging our state-backed legacy, complete female tuition waivers, and strong community partnerships, this strategic blueprint outlines our physical and digital enablers to support underrepresented, financially challenged, and differently-abled cohorts over the 2026-2031 planning horizon.

5.9.1 Equitable Access and Financial Support Programs

AVPTI Rajkot serves as a key engine of social mobility in the Saurashtra region. As a premier government-owned polytechnic, we implement state policies to eliminate financial barriers to entry for socioeconomically weaker sections and actively encourage female participation in technical disciplines. Specifically, the institute enforces a highly progressive fee structure: a very nominal tuition fee of just Rs. 1,000 per annum is charged for male students, while zero tuition fees are charged for all enrolled female students across all eight diploma engineering branches. This mandate significantly lowers attrition and establishes a stable foundation for technical career pathways.

To supplement state fee exemptions, the institute's active Student Welfare Committee and the AVPTI Alumni Association work in tandem to mobilize local community resources. This joint ecosystem provides targeted financial aid to needy students, covering essential living expenses, mess food charges, and academic textbooks. A primary example of this community-driven support is the late Shri S. R. Murti family scholarship corpus of Rs. 2,00,000/-,

which is managed in trust by the Alumni Association and distributed annually as merit-cum-means scholarships to high-performing, economically challenged scholars across multiple departments.

Table 8.1: Government Scholarship Recipient Profile (Survey Year 2024-2025)

Social Category / Cohort	Male Recipients	Female Recipients	Total Beneficiaries
General including EWS	35	17	52
Other Backward Classes (OBC)	101	104	205
Scheduled Castes (SC)	15	5	20
Scheduled Tribes (ST)	1	1	2
Combined Scholarship Profile	152	127	279

5.9.2 Gender Sensitization, Safety, and Equal Opportunity Cells

To ensure a safe, supportive, and completely equal learning environment for female students and staff, AVPTI Rajkot has institutionalized several mandated grievance cells and welfare bodies under the administrative proceedings of Office Order No. AVP/Mahekam/Committee/2025/35. The primary operational cells include:

- **Women Development Cell (WDC) & Internal Complaints Committee (ICC):** Headed by Smt. Manisha K. Goswami, these bodies work solely to maintain a secure, harassment-free campus. The committee coordinates regular safety audits and has made it mandatory for all enrolled female students to register for and familiarize themselves with the Government Abhiyan Safety App to enable immediate emergency reporting in critical situations.
- **Grievance Redressal Cell:** Provides a transparent, timely, and secure mechanism for addressing academic or administrative complaints. Contact details and dedicated email addresses (avpti.gricell@gmail.com) of officers-in-charge are displayed publicly on central notice boards to ensure full accessibility and operational transparency.
- **Anti-Ragging Committee and Squad:** Directly chaired by the Principal with all Heads of Departments (HODs) and the hostel rector as active members, enforcing a zero-tolerance policy across all building corridors, campus common rooms, and hostels.

In addition to regulatory frameworks, the lady faculty of the institute proactively drive targeted welfare programs for female students. This includes establishing a dedicated, peer-supervised, staff-funded hygienic dispensary for the free distribution of sanitary napkins, coupled with structured medical and psychological counseling workshops. Through established institutional alliances with premier healthcare hospitals, such as Wockhardt and Sterling Hospitals, eminent female medical professionals and gynecologists regularly visit the campus to conduct dedicated diagnostic seminars, medical checks, and wellness sessions.

5.9.3 Community Development and Rural Outreach Initiatives

Beyond internal campus integration, the UGC guidelines prioritize community engagement as a core educational responsibility. AVPTI Rajkot's student body is actively integrated into regional community service through two primary statutory arms:

National Service Scheme (NSS) Cell:

The NSS cell (boasting 148 male and 100 female active student volunteers) runs structured annual social outreach campaigns. These include conducting vital blood donation camps in partnership with Rajkot Civil Hospital and Prathama Blood Bank, specifically focused on securing blood supplies for children suffering from thalassemia in surrounding rural blocks. Additional annual milestones include regular visits to Sadbhavna Vrudhashram (old age homes) and local orphanages, environmental conservation cycle rallies ('Save Energy'), and active donation drives supporting the National Association for the Blind, Rajkot.

National Cadet Corps (NCC) Unit:

Allotted on June 28, 2019, the NCC sub-unit comprises 50 Senior Division cadets affiliated with the 2 Gujarat Battalion NCC, Rajkot. The unit is dedicated to developing character, leadership, and a spirit of selfless service. During the COVID-19 pandemic, the unit showcased exemplary civic responsibility: cadets Zala Shivrajsinh and Chudasama Hadtdeepsinh performed active duty assisting local civil and police administrations in traffic control and essential logistics management, earning official certificates of appreciation from the Group Commander.

5.9.4 Year Implementation and Resource Mobilization Roadmap

To transition these activities into structured, measurable goals, the IDP committee has defined three core academic and physical enablers to be executed by specific departmental coordinators:

Strategic Objective	Key Action Steps	Timeline	Target Key Performance Indicator
Rural School Admissions Campaign	Design and execute coordinated information roadshows across 15+ rural and tribal schools in Rajkot District to promote diploma admissions and highlight zero-fee girl quotas.	Year 1-2	Increase the proportion of first-year rural student enrollments by 15%.
Campus Accessibility Upgrades	Install physical handrails, tactile paving, and dedicated concrete ramps at the main library and central administrative blocks to ensure full PwD friendliness.	Year 2	Establish 100% barrier-free ground-floor access in major buildings.
E-Resource Subscriptions & Remote Access	Procure remote, round-the-clock digital subscriptions (via the NDLI Club network) to eliminate textbook cost barriers for off-campus hostel residents.	Year 1	Verify >300 unique student logins per month to e-databases.

SECTION 6: IDP STRATEGIC IMPLEMENTATION MATRICES

6.1 SWOT-to-KPI Action-Plan Strategic Matrix

NEP-2020 Strategic Goal Alignment Mandate:

This Action-Plan Matrix operationalizes the strategic SWOC coordinates identified during institutional stakeholder brain-storming sessions. Every activity is strictly mapped to the key weaknesses, opportunities, and threats flagged in the NBA Criterion 8 & 9 evaluations and AICTE EOA directives, establishing a direct, accountable line of custody from SWOT analysis to quantifiable Key Performance Indicators (KPIs).

SWOT Coordinate & Strategic Objective	Concrete Activities / Action Steps	Responsible Cell / Dept	Phased Timeline	Est. Budget & Funding Source	Measurable KPI & Target Metric	Review & Course-Correction Protocol
Weakness: Sanitation & Water Quality Gaps Objective: Eradicate campus hygiene deficits to raise student satisfaction.	1. Coordinate with state Roads & Buildings (R&B) Department for complete civil renovation of academic block washrooms. 2. Install AMC-backed industrial RO water coolers and purifiers in all wings. 3. Implement a daily digital housekeeping audit log.	Campus Infrastructure Cell / HODs (Liaison with R&B Dept)	Year 1	Capital outlay: ₹15.0 Lakhs Source: State Grant / DTE	• 100% functional, modern washrooms in all blocks. • Student survey hygiene satisfaction rises from 72% to >85% in semester feedback.	Quarterly physical audit by Campus Development Committee; feedback reports submitted to CTE Gandhinagar.
Weakness: Digital Library Access Gaps Objective: Implement 24/7 off-campus electronic academic resources.	1. Procure institutional subscriptions to IEEE, ASME, and ScienceDirect databases. 2. Deploy a secure remote-access authentication portal (Knimbus/INFED). 3. Host monthly hands-on training sessions under the registered NDLI Club framework.	Central Library Committee / Library Nodal Officer	Year 1 & 2	Recurring: ₹4.5 Lakhs / year Source: SSIP 2.0 / Local Library Fund	• Remote-access platform launched and operational. • NDLI Club portal records >150 unique student logins per day.	Bi-annual library usage analytics reviewed by Library Nodal Officer to optimize subscription renewals.
Weakness: Affiliated Curriculum Rigidity	1. Formulate Departmental Advisory Committees (DACs) with Rajkot MSME leaders. 2. Adopt GTU/AICTE credit-transfer rules to pre-approve up to 40% SWAYAM/NPTEL online courses.	Academic Committee / Departmental HODs	Year 1 & 2	Operational cost: ₹1.2 Lakhs / year Source:	• ABC portal registers 100% student enrollment. • >30% of diploma students complete at least one credit-mapped industrial certification.	DAC monitors student progress once per semester; reports credit transfers directly to the Academic Bank of Credits.

Objective: Mitigate GTU constraints by scaling flexible skill-enhancement pathways.	3. Integrate Wadhvani 'Job-Ready' curriculum as a non-credit mandatory module.			KCG Finishing School Grants		
Weakness: Financial Procurement Restrictions Objective: Resolve local cash limits (₹500) and procurement delays.	1. Establish decentralized Departmental Petty Cash Funds using student gymkhana and local welfare accounts. 2. Consolidate annual lab consumable requirements 6 months in advance to bypass GeM processing bottlenecks. 3. Delegate local minor repairs (up to ₹5 Lakhs) directly to the DLPC.	Principal's Office / District Level Purchase Committee (DLPC)	Year 1 & 2	Administrative: Zero-Cost Source: Procedural Shift	• Average procurement turnaround time reduced from 90 days to <30 days. • 100% of departmental recurring budgets utilized by fiscal year-end.	Mid-term administrative audit of fund utilization and purchase turnaround cycles conducted by Store Officer.
Weakness: On-Campus Medical Support & ATM Deficits Objective: Upgrade basic health enablers and establish financial convenience.	1. Establish a dedicated, fully equipped Student Wellness and First Aid Room. 2. Sign MoUs with neighboring premier hospitals (Wockhardt/Sterling) for weekly physician visits. 3. Lobby State Bank of India to install an on-campus digital cash-recycler kiosk.	Student Welfare Cell / Principal Liaison Office	Year 2 & 3	Wellness Setup: ₹2.5 Lakhs Source: Alumni Fund / CSR	• First-Aid Room operational with emergency oxygen, AED, and continuous first-aid supplies. • SBI ATM kiosk installed on campus.	Student Welfare officer reviews medical register monthly; quarterly coordination meetings with SBI local branch.
Opportunity: Credit-Linked Skilling (NCrF/NSQF) Objective: Embed vocational qualifications into standard diploma streams.	1. Re-align diploma practical modules with NSQF level descriptors. 2. Establish credit equivalencies with Gujarat State School Board to streamline vocational lateral entries. 3. Co-design modular courses with national training providers like NSIC.	Academic Council / NSQF Nodal Cell	Year 2	Curricular Setup: ₹1.0 Lakh Source: State NEP Fund	• Cumulative 25% increase in vocational lateral admissions (D2D). • 3 vocational branches fully NCrF-aligned and credited.	Annual academic audit by GTU-appointed observers to review credit transfer equivalency mapping.
Opportunity: Rajkot Industrial Corridor & IRG Scheme Objective: Commercialize existing advanced laboratory facilities for self-sustainability.	1. Map highly specialized testing/calibration apparatus in Biomedical and IC departments. 2. Publish subsidized testing charge sheets for regional MSMEs and municipal medical bodies. 3. Launch weekend evening certification programs in solar PV design and PLC automation.	IRG Cell / Biomedical & IC Departmental Heads	Year 2 & 3	Marketing outlay: ₹1.5 Lakhs Source: State IRG Scheme	• 15 local MSMEs regularly utilize calibration services. • Generated Internal Revenue (IRG) reaches ₹10.0 Lakhs annually by Year 3.	Financial audit of the dedicated IRG bank account conducted annually by local Chartered Accountants.

Opportunity/Threat: SSIP 2.0 Venture Studio vs. Industry 4.0 Shifts Objective: Fast-track rapid prototyping to prevent tech obsolescence.	1. Transition traditional workshops into a centralized Makerspace centered on the ₹35.07 Lakh PGVCL CSR equipment. 2. Set up a CTE Applied AI Lab and GTU-CDAC RF-VLSI semiconductor facility. 3. Align student project credits with prototype patents and SSIP grants.	SSIP Cell / Nodal Officer / CDAC Nodal Cell	Year 2 & 3	Capital outlay: ₹45.0 Lakhs Source: SSIP 2.0 State Grant / CSR	• Central MakerSpace fully operational 12 hours/day. • CTE AI Lab and CDAC Chip Design facilities launched. • Minimum 5 patent applications filed per year.	Quarterly project evaluation by SSIP screening committee led by external venture mentors.
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6.2 5-Year Academic KPI Tracking Matrix

Executive Mandate: This KPI Matrix translates the five key academic initiatives designed to overcome curriculum rigidity, integrate national skilling frameworks (NCrF/NSQF), and boost student employability into a highly accountable, tracked operational structure. Progress is monitored monthly by the Academic Inspection Committee and quarterly by the IQAC.

Academic Initiative	Key Performance Indicator (KPI)	Baseline (Y0)	Y1 (26-27)	Y2 (27-28)	Y3 (28-29)	Y4 (29-30)	Y5 (30-31)	Officer-in-Charge
1. Interdisciplinary Synergy Clusters for Capstone Projects	Active student final-year capstones crossing standard departmental lines.	0 Projects	3 Projects	6 Projects	10 Projects	15 Projects	20 Projects	SSIP Nodal Officer & All Departmental HODs
1. Interdisciplinary Synergy Clusters for Capstone Projects	Interdisciplinary prototypes securing SSIP 2.0 commercial grants.	0 Grants	1 Grant	2 Grants	3 Grants	5 Grants	8 Grants	SSIP Nodal Officer & SSIP Committee Members
2. Credit-Mapped SWAYAM/NPTEL MOOC Integration	Proportion of graduating students completing credit-mapped online courses.	0.5%	10.0%	20.0%	30.0%	40.0%	50.0%	IQAC Chairman, Academic Coordinators

2. Credit-Mapped SWAYAM/NPTEL MOOC Integration	Approved SWAYAM online electives mapped in Academic Bank of Credits.	2 Courses	5 Courses	10 Courses	15 Courses	20 Courses	25 Courses	Academic Inspection Cell
3. Wadhvani Foundation 'Job-Ready' Integration	Students fully certified under Wadhvani 113-hour employability course.	0 Students	150 Stud.	300 Stud.	500 Stud.	700 Stud.	1,000 Stud.	HOD, General & Training & Placement Officers
3. Wadhvani Foundation 'Job-Ready' Integration	Active faculty trained as certified 'Employability Skills' mentors (ToT).	0 Faculty	4 Faculty	8 Faculty	12 Faculty	16 Faculty	20 Faculty	Training & Placement Department Coordinators
4. 'Peer-Led' Finishing School Soft-Skills Camps	Peer-led soft-skills training workshops & resume-writing clinics conducted.	0 Camps	2 Camps	4 Camps	6 Camps	8 Camps	10 Camps	Training & Placement Department Coordinators & Finishing School Cell
4. 'Peer-Led' Finishing School Soft-Skills Camps	Target student population (Pre-final & Final year) sensitized/trained.	15.0%	30.0%	50.0%	70.0%	85.0%	100.0%	Student Peer Mentors
5. Weekly Departmental Technical Seminars	Departmental seminars integrated into students' weekly timetables.	Ad-hoc	1 Hr/Wk	1 Hr/Wk	1.5 Hr/Wk	1.5 Hr/Wk	2 Hr/Wk	All Departmental HODs & Departmental Timetable Committees
5. Weekly Departmental Technical Seminars	Technical seminar evaluations conducted in the Language Lab with Alumni.	0 Seminars	16 Seminars	32 Seminars	48 Seminars	64 Seminars	80 Seminars	English Faculty & Alumni Association

SECTION 7: MONITORING, EVALUATION, AND RISK MANAGEMENT PLAN

"The Institutional Development Plan is a dynamic compass, not a static mandate. Pursuant to the UGC guidelines and Commissionerate of Technical Education directives, this section establishes robust monitoring architectures, objective progress-tracking indices, and concrete risk-mitigation measures to assure absolute institutional accountability, administrative transparency, and progressive quality enhancement."

7.1 Multi-Tiered Monitoring and Evaluation Structure

To achieve the vision of transitioning A. V. Parekh Technical Institute (AVPTI), Rajkot into a future-ready, Industry 4.0-aligned diploma-granting polytechnic, the implementation of strategic initiatives must be continuously scrutinized and evaluated. Rather than establishing a singular, siloed oversight committee, a three-tiered administrative monitoring architecture is established. This ensures immediate departmental correction, rigorous institutional alignment, and direct statutory accountability to the state government.

Oversight Level	Primary Committee / Body	Composition & Key Officers	Oversight Mandate & Frequency
Level 1: Departmental	Academic Planning & Inspection Committee (Inter-Departmental Audit)	• Chairman: Shri G. V. Parmar; - Members: - Shri H. B. Patel (HOD, Gen) - Shri A. K. Panchasara (CE)	• Mandate: Conduct monthly progressive academic audits of syllabus coverage, practical lab engagement percentages, lesson plans, and student attendance registers. • Frequency: Monthly inspections and immediate corrective feedback to Department Heads.
Level 2: Institutional	Internal Quality Assurance Cell (IQAC) & Mentoring & Feedback Committee	• Chairman: Shri G. V. Parmar (Principal) • Secretary: Shri A. K. Panchasara (CE) • Feedback Lead: Shri B. C. Changela (Biomedical) • Representatives: All HODs, Industry, Alumni, and Students	• Mandate: Review consolidated monthly academic reports, evaluate 360-degree feedback trends, analyze semester-wise exam results, monitor SSIP/DIC funding outlays, and audit placement metrics. • Frequency: Quarterly formal reviews and annual strategic milestones mapping.
Level 3: Apex / State	Commissionerate of Technical Education (CTE) & Gujarat Technological University (GTU)	• Nodal Authority: Directorate of Technical Education, Gandhinagar • Academic Regulator: Registrar, GTU, Ahmedabad	• Mandate: Formally review the annual IDP progress reports, authorize major capital outlays (>Rs. 5 Lakhs) via the District Level Purchase Committee (DLPC), approve civil renovations with the R&B Department, and evaluate statutory compliance. • Frequency: Annual formal evaluation.

7.2 Progress Tracking Mechanisms and Feedback Loops

A robust tracking mechanism transforms strategic intent into measurable progress. AVPTI Rajkot adopts an online-offline integrated tracking mechanism that emphasizes 360-degree feedback loops and systematic mid-term course correction:

- **Online Performance Dashboard (COGENT & ERP):** The institute will utilize the Department of Technical Education's centralized COGENT system and migrate to our proposed SaaS ERP portal to log and track real-time indices—such as student enrollment profiles, semester exam results, SSIP innovation project approvals, and DTE grant utilization rates. This replaces manual paper audits with transparent, real-time analytics.
- **360-Degree Structured Feedback Loops:** Directed by the Mentoring & Feedback Committee the institute systematically collects feedback once per semester from key stakeholders: (a) Student feedback on faculty performance (using a standardized 1-to-5 metric analyzed by the DAC), (b) Student feedback on campus facilities (classrooms, Wi-Fi, washrooms, medical enablers), (c) Employer/Industry feedback regarding diploma graduate readiness, and (d) Parent-Mentor consultative feedback on student regularity and academic progression.
- **Annual Progress Report Submission:** The IQAC cell, under the direction of Principal, will compile and submit a comprehensive annual progress report detailing target achievements, grant utilization certifications (Form GFR 19-A), physical laboratory modernization progress, and NBA accreditation milestones to the Commissionerate of Technical Education (CTE), Gandhinagar.
- **Mid-Term Course Correction Loop:** If any department fails to meet its annual targets—or if a faculty member receives an average student feedback index below the standard benchmark of 3 out of 5—the Department Advisory Committee (DAC) initiates immediate counseling. The faculty member is recommended for specialized pedagogy or technology upskilling (such as AICTE ATAL FDPs) and paired with an experienced department mentor to ensure immediate, subsequent performance correction.

7.3 Comprehensive Risk Management and Mitigation Matrix

Operating as a premier state government-run technical polytechnic entails several external and internal administrative, academic, and financial risks. To safeguard institutional continuity, ensure student safety, and protect capital outlays, the IDP Committee has formulated a comprehensive Risk Mitigation Framework. The risk matrix details specific scenarios and mitigation protocols:

Risk Category	Identified Risk Scenario	Impact Rating	Probability Rating	Mitigation Strategy & Action Protocol
Academic & Pedagogical	CENTRALIZED SYLLABUS LAG: Syllabus updates by Gujarat Technological University (GTU) fail to match rapid Industry 4.0/5.0 technology shifts.	High	High	• Proactively integrate SWAYAM PLUS / NPTEL online certifications for up to 40% of elective credits. • Form local Departmental Advisory Committees to establish co-designed, short-term skilling micro-credentials.
Human Resources	FACULTY VACANCIES & TRANSFERS: Vacancies due to GPSC recruitment cycles and transferable government services disrupt departmental continuity.	High	Medium	• Standardize digital content repositories on the CWAN network to preserve instructional materials. • Utilize PGVCL CSR mechatronics benches and digital simulators to support self-learning and peer-led labs.
Financial & Administrative	PROCUREMENT DELAYS:	Medium	High	• Establish decentralized Departmental Petty Cash funds from

	Strict GeM purchasing compliance and low local cash transaction limits (Rs. 500) delay lab consumable onboarding.			student welfare resources under Principal oversight. • Consolidate annual lab equipment/consumable lists 6 months in advance to bypass GeM validation bottlenecks.
Physical & Safety	MEDICAL EMERGENCIES: The lack of a dedicated hospital-grade clinic on campus poses safety risks for student cohorts during industrial workshop classes.	High	Low	• Establish a dedicated on-campus First Aid & Counseling Room in the administrative block. • Execute formal MoUs with nearby municipal and premier private healthcare centers (e.g., Wockhardt and Sterling) for rapid emergency transport and weekly counseling visits.
Infrastructure & Technology	MAINTENANCE BOTTLENECK: Heavy bureaucratic dependence on the state Roads & Buildings (R&B) department delays basic campus washroom, civil, and electrical maintenance.	High	High	• Secure direct Annual Maintenance Contracts (AMC) with local vendors for high-impact systems (RO purifiers, computers, NAMO Wi-Fi). • Leverage DLPC powers (delegating up to Rs. 5 Lakhs local procurement) for fast-track repairs.

SECTION 8: BUDGET, FINANCIAL PLAN AND SUSTAINABILITY

To ensure structured and compliant execution of the proposed strategic modernization plans under the UGC and state guidelines, AVPTI Rajkot outlines a comprehensive 5-year budget layout reported in Rupees Crores. The initial 3-year phased digital capital modernization plan requires a total capital outlay of ₹1.00 Crore (Rupees One Crore), while the operational expenditure (OPEX) is designed to transition into a self-sustaining financial cycle through Internal Revenue Generation (IRG) consulting services and alumni endowments:

Financial F.Y. Year	Proposed Modernization Initiative	Key Capital Deliverables	Outlay (₹ Crore)
Year 1 (A.Y. 2026-27)	Pillar 1: Interactive Panels Setup & Centralized Prototyping MakerSpace	• 75" panels in 10 classrooms. • Physical Tinkering Lab setup with existing PGVCL machinery.	0.35 Crore (₹35.0 Lakhs)
Year 2 (A.Y. 2027-28)	Pillar 2: Lecture Capture & ERP Academic Life-cycle Integration	• Remaining 12 rooms equipped with panels. • Cloud-based ERP module rollout.	0.42 Crore (₹42.0 Lakhs)
Year 3 (A.Y. 2028-29)	Pillar 3: Smart RFID Attendance & Cloud Virtualization Station	• Automated RFID-linked campus attendance. • High-performance simulation licenses	0.23 Crore (₹23.0 Lakhs)
GRAND TOTAL	Consolidated 3-Year Capital Outlay Requirement	100% Smart Campus, Cloud ERP, and MakerSpace	1.00 Crore (₹100.0 Lakhs)

Sustainability and Internal Revenue Generation (IRG) Strategy

As a state government institution, AVPTI's major operations have historically been funded by the state's Integrated Financial Management System (IFMS) grants (which exceeded ₹20.63 Crores in F.Y. 2023-24). To transition to a self-reliance model in compliance with the UGC IDP Annexure B guidelines, the institute will implement a progressive IRG scheme that leverages departmental laboratory capabilities. Starting in Year 1, we project an initial target of ₹0.07 Crore (₹7.0 Lakhs) across our specialized consultancy services, medical testing calibration, solar training, and costume design pattern audits, scaling to an annual target of ₹0.205 Crore (₹20.5 Lakhs) by Year 5. All generated internal revenue will be deposited into a dedicated financial account under the Financial/Investment Committee to fund advanced software license renewals, recurring laboratory consumables, and merit-cum-means student scholarships.

SECTION 9: CONCLUSION

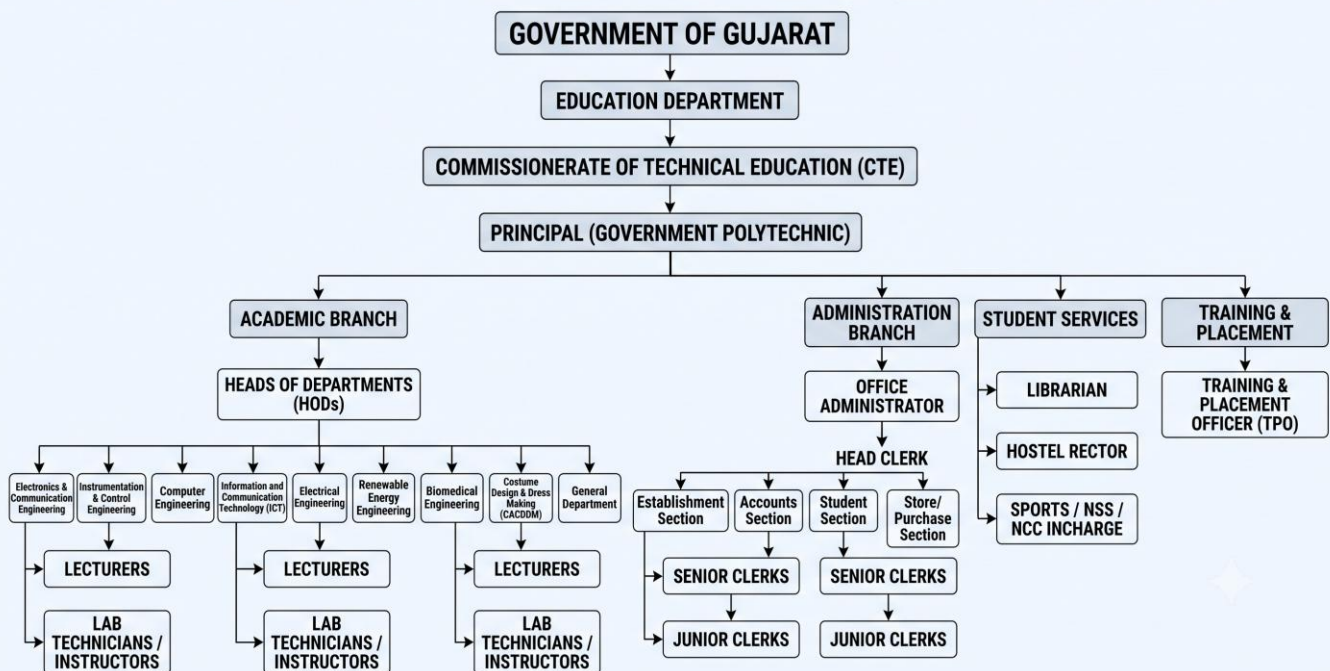
This comprehensive Institutional Development Plan (IDP) represents a visionary, rigorous, and self-regulating roadmap for A. V. Parekh Technical Institute (AVPTI), Rajkot. By seamlessly synthesizing the mandates of the National Education Policy (NEP) 2020 and the University Grants Commission (UGC) Guidelines with our 75-year-old technical skilling legacy, this document bridges critical institutional gaps while establishing a self-sustaining financial, academic, and administrative ecosystem. Through the implementation of the three Strategic Horizons, the integration of interdisciplinary engineering clusters, the execution of the 3-year Infrastructure, Faculty, and Inclusivity plans, and the launch of department-specific Internal Revenue Generation (IRG) schemes, AVPTI Rajkot is fully prepared to transition from a traditional polytechnic into an Industry 4.0-aligned technological hub. This document serves as our institutional blueprint for quality technical education, stakeholder trust, and continuous sustainable excellence.

SECTION 10: ANNEXURES

Appendix A: Organizational Structure and Governance

As a state government-run technical institute, AVPTI Rajkot's administrative hierarchy adheres to the standard guidelines of the Education Department, Government of Gujarat. The Commissionerate of Technical Education (CTE) in Gandhinagar serves as the primary governing and funding agency. The Principal holds all administrative, financial, and executive authority on campus, steering the academic and student welfare bodies. Each of the eight engineering and vocational departments is managed by a dedicated Head of Department (HOD), who supervises instructional staff and laboratory technicians and oversees continuous student evaluations. Standardized oversight cells—including the IQAC, SSIP Cell, and District Level Purchase Committee (DLPC)—serve as specialized advisory units to support e-governance and accreditation processes.

APPENDIX A: ORGANIZATIONAL STRUCTURE OF GOVERNMENT POLYTECHNIC (GUJARAT) UNDER THE COMMISSIONERATE OF TECHNICAL EDUCATION (CTE), EDUCATION DEPARTMENT.



Note: Representative Structure; Actual titles and numbers may vary.

Appendix B: State Government / DTE Recruitment and Financial Delegation Policies

As a fully funded and administered Government Polytechnic under the Government of Gujarat, this institute operates strictly within the statutory framework, rules, and regulations established by the state:

- **Administrative, Financial, and Recruitment Policies:** All matters pertaining to human resources, staff recruitment, financial delegations, procurement, and general institutional administration are governed entirely by the prevailing norms and direct mandates of the Government of Gujarat (GoG), the Education Department, and the Commissionerate of Technical Education (CTE), Gandhinagar.
- **Academic Policies and Guidelines:** For all academic affairs—including curriculum implementation, academic calendar compliance, examination protocols, and student evaluation—the institute strictly adheres to the policies, ordinances, and academic regulations established by Gujarat Technological University (GTU).
- **Institutional Participation in Policy Execution:** The institute maintains a dynamic relationship with these governing bodies. Several members of our academic faculty and administrative staff are actively involved in state-level technical committees, university syllabus drafting boards, and examination bodies, ensuring our institute contributes directly to the execution and refinement of these procedural processes.
- **Official Reference Portals:** As the official policies, service rules, and financial delegation frameworks are extensive, centrally governed, and subject to periodic state amendments, they are not duplicated as physical copies within this IDP. Reviewers and stakeholders may access the most current, official policy documents and circulars directly through the following institutional portals:
 - Commissionerate of Technical Education (CTE), Gujarat: <https://cte.gujarat.gov.in/>
 - Education Department, Government of Gujarat: <https://education.gujarat.gov.in/>
 - Gujarat Technological University (GTU): <https://www.gtu.ac.in/>
 - Government of Gujarat Official Portal: <https://gujaratindia.gujarat.gov.in/>