

Developing Institutional Development Plan (IDP)

**As per NEP Policy 2020 Guidelines for Technical
& Professional Institutions in Gujarat**

Proposed by

**Shantilal Shah Engineering College
Bhavnagar**



Duration: Year 2026-2031

New Sidsar Campus, Post-Vartej, Bhavnagar - 364060, Gujarat

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1 INSTITUTIONAL PROFILE

Table 1.1 Institute Details

Year of Establishment:	1983
Type:	Government Engineering College
Affiliating University:	Gujarat Technological University
Principal Name and Contact:	Dr. G. P. Vadodaria +91 90990 63043 principal@ssgec.ac.in
Accreditation Status:	Not Currently Accredited
AISHE Code:	1-6213621 (AICTE Permanent ID)
Website:	www.ssgec.ac.in

2 VISION, MISSION & CORE VALUES

2.1 Vision Statement:

To become a leading engineering institute in the state, by developing excellent engineers capable of fulfilling needs of industry, society and nation at large.

2.2 Mission Statement:

- Provide quality education through effective teaching-learning processes.
- Promote innovation, research and development.
- Encourage ethical values, leadership and teamwork.
- Build industry-institute collaboration for real-world skills.

2.3 Core Values:

- Integrity and Ethical practices
- Inclusiveness and Equality
- Innovation and Creativity
- Transparency and Accountability
- Quality and Excellence

2.4 Summary of Key Initiatives in the IDP:

VISION 2035: INSTITUTIONAL AUTONOMY & EXCELLENCE

Shantilal Shah Engineering College, Bhavnagar, established in 1983 with a 43-year legacy of continuous AICTE approval, envisions transforming from a traditional government engineering college into an autonomous institution demonstrating academic excellence, research leadership, and operational sustainability by 2035. This Institutional Development Plan (2026-2035) charts a comprehensive 10-year roadmap through which SSEC will achieve institutional autonomy while strengthening its commitment to inclusive, high-quality engineering education serving the nation, region, and local communities.

THE AUTONOMY VISION

By 2035, SSEC aspires to establish itself as a leading engineering institute in the state, by developing excellent engineers capable of fulfilling needs of industry, society and nation at large, characterized by:

- Academic Independence: Design and deliver NEP 2020-aligned, multidisciplinary curricula with outcome-based education, global benchmarking, and flexibility; achieve institutional accreditation
- Research Leadership: Operate 5 Centers of Excellence generating 25+ cumulative patents, 100+ annual publications, and ₹100L+ external research funding; establish robust innovation and entrepreneurship ecosystem supporting 10+ student-led startups
- National Recognition: Achieve ranking among India's top 100 engineering colleges; establish 3+ international collaborations; demonstrate excellence in student outcomes with 80% undergraduate and 100% postgraduate placement at ₹7.5 LPA average salary

STRATEGIC FRAMEWORK: SIX PILLARS OF INSTITUTIONAL EXCELLENCE

The IDP is built on six integrated strategic pillars that collectively drive institutional transformation:

2.4.1 PILLAR 1: ACADEMIC EXCELLENCE & PEDAGOGICAL INNOVATION

SSEC commits to comprehensive curriculum modernization aligned with NEP 2020 principles. The institution will propose as when required to GTU to redesign necessary academic framework in existing Choice-Based Credit System (CBCS) with Outcome-Based Education (OBE), multidisciplinary content integration across engineering domains. The programs will demonstrate full NEP alignment with emphasis on flexibility, student choice, and real-world problem-solving orientation.

Key Initiatives:

- a) Implement Learning Management System (LMS) supporting 80% course coverage by 2028, enabling 24/7 access to digital course materials, assignments, and assessments
- b) Deploy 50 smart classrooms by 2030 with interactive digital boards, AI-enabled learning analytics, and real-time student engagement monitoring
- c) Develop 5 SWAYAM platform courses by 2030, contributing to national open education ecosystem while enhancing institutional visibility

- d) Launch bilingual (English-Gujarati) course materials, video content with subtitles, and vernacular explanations to support first-generation students and ensure inclusivity
- e) Establish Teaching-Learning Centers (TLCs) as innovation hubs for pedagogical experimentation, faculty professional development, and documentation of best practices
- f) Introduce new programs in emerging technologies: Instrumentation & Control Engineering (30 seats, 2027-28) and Electronics & Communication Engineering revival (60 UG + 18 PG, 2027-28)
- g) Mandatorily integrate 4-5 credit-bearing skill modules into curricula covering communication, digital literacy, project management, and entrepreneurship
- h) Ensure 100% undergraduate internship participation through mandatory 6-month pre-final year industrial engagement
- i) Targets by 2031: 80% NEP-aligned programs, 15-20% multidisciplinary curriculum integration, 50% blended learning delivery, 5 SWAYAM courses, 50 smart classrooms operational, 100% internship placement

2.4.2 PILLAR 2: RESEARCH EXCELLENCE & INNOVATION ECOSYSTEM

SSEC will establish itself as a research-driven institution through systematic creation of research infrastructure, external funding acquisition, intellectual property development, and innovation support systems. The institution will progressively build research capacity from current limited baseline to sustained research excellence characterized by quality publications, patent filings, and student entrepreneurship.

Key Initiatives:

- a) Proposal for permission of new PG courses in Civil Engineering (Structural Engineering), Electrical Engineering (Power Systems & Renewable Energy), Mechanical Engineering (Production Engineering), and IT Engineering (AI/ML & Cybersecurity)
- b) Establish 3 Centers of Excellence by 2030 in Civil Engineering (Structural Engineering & Sustainability), Electrical Engineering (Power Systems & Renewable Energy) and IT Engineering (AI/ML & Cybersecurity), expanding to 5 CoEs by 2035
- c) Create dedicated R&D Cell

- d) Operationalize Innovation & Entrepreneurship Development Cell (IEDC) providing one-window support system for student innovators through mentoring, incubation facilities, networking opportunities, and access to funding; conduct bootcamps, pitch competitions, and business plan workshops
- e) Develop research partnerships with IITs, NITs, and national laboratories through formal MoUs enabling joint research projects, faculty and student exchanges, and shared research facilities
- f) Implement research incentive schemes including performance bonuses for high-impact publications, conference travel support, and recognition awards
- g) Pursue external research funding systematically from SERB, DST, AICTE research schemes, and industry-sponsored projects
- h) File minimum 10 patents by 2030, reaching 10 patents by 2035 through faculty research and student innovations
- i) Targets by 2031: 3 CoEs operational, ₹50-100L annual external research funding, 20+ faculty engaged in active research, 10+ research publications annually, 5+ patents filed, 5+ startup POCs developed, 50+ research collaborations

2.4.3 PILLAR 3: INDUSTRY PARTNERSHIPS & PLACEMENT EXCELLENCE

SSEC will formalize and sustain strategic partnerships with leading industries, professional societies, and skill councils, ensuring curriculum relevance, student employability, and operational revenue generation. The institution will establish itself as a preferred recruitment and research partner for major corporations while leveraging professional partnerships for sectoral excellence and academic enhancement.

Key Initiatives:

- a) Formalize Memoranda of Understanding with minimum 20 leading companies covering internships, campus recruitment, curriculum advisory, live projects, equipment donations, and collaborative research
- b) Establish Industry-led Curriculum Advisory Board comprising industry professionals, alumni, and academics meeting annually to ensure curriculum evolution with industry demands

- c) Activate and sustain professional partnerships with Indian Geotechnical Society (IGS) and Bureau of Indian Standards (BIS) for sectoral credibility and research collaboration
- d) Conduct intensive 4-week finishing schools before placement season covering interview skills, group discussions, technical preparation, soft skills development, and personality enhancement through mock interviews with industry professionals
- e) Implement mandatory 6-month internships for all final-year students in relevant industries with structured mentoring and credit recognition
- f) Achieve UG placement rate progression from 65% (2025-26) to 80% (2035) with average salary enhancement from ₹4.5 LPA to ₹7.5 LPA; maintain 100% PG placement at ₹7.5 LPA
- g) Organize quarterly job fairs featuring 30+ companies annually, with specialized fairs for emerging technology roles
- h) Establish student professional societies aligned with IEEE, ACM, IGS, and IEI to foster professional development and networking
- i) Conduct annual technical expos showcasing student projects and research innovations to industry representatives
- j) Organize and sponsor student participation in national-level technical competitions to develop competencies in emerging technologies
- k) Targets by 2031: Additional 20+ in existing active industry partnerships, 100% internship coverage, 90% UG and 100% PG placement, average salary ₹7.5 LPA, BIS partnerships formalized with tangible research outcomes

2.4.4 PILLAR 4: DIGITAL TRANSFORMATION & SMART CAMPUS INFRASTRUCTURE

SSEC will establish itself as a digitally enabled institution through comprehensive deployment of modern IT infrastructure, learning platforms, administrative systems, and sustainability technologies. The institution will create a 21st-century campus environment supporting seamless digital access, efficient operations, and sustainable practices.

Key Initiatives:

- a) Deploy integrated Learning Management System (LMS) platform supporting 80% course coverage by 2028, enabling 24/7 student-faculty access to course materials, assignments, submissions, discussions, and assessments with adaptive learning recommendations

- b) Implement Enterprise Resource Planning (ERP) system by 2027 streamlining student admissions, fee management, academic records, faculty payroll, financial operations, and administrative workflows with real-time dashboard reporting
- c) Establish WiFi 7 or next-generation infrastructure providing 100% campus-wide coverage by 2028 with high-speed, reliable connectivity enabling ubiquitous device access and cloud-based learning
- d) Develop digital e-library providing 24/7 access to online journals, e-books, research databases, and study materials with membership to national and global digital libraries
- e) Create 50 smart classrooms by 2029 equipped with interactive digital boards, AI-enabled learning analytics, recording capabilities, and real-time student engagement monitoring
- f) Establish comprehensive CCTV surveillance system for campus safety and security monitoring across all facilities
- g) Implement rainwater harvesting system achieving 50% campus water independence and develop wastewater recycling system for sustainable water management
- h) Design and construct green spaces, waste management systems, and adopt LEED/GRIHA green building standards in new facilities targeting carbon neutrality by 2035
- i) Establish paperless office environment, online examination system, automated evaluation, and digital markcard facilities

2.4.5 PILLAR 5: FACULTY EXCELLENCE & CONSULTANCY ENGAGEMENT

SSEC will systematically develop its faculty through targeted recruitment, professional development, research opportunities, and consultancy engagement. The institution will position faculty as research leaders, industry consultants, and pedagogical innovators while generating operational revenue through consultancy and testing services to support academic programs.

Key Initiatives:

- a) Proposal to DTE for recruitment faculty members so as to maintain cadre ratios for UG and PG
- b) Increase Ph.D.-qualified faculty from 65% (2025-26) to 80% by 2035 through support for doctoral studies, post-doctoral opportunities, and targeted recruitment of Ph.D. holders

- c) Mandate minimum 40-hour annual Faculty Development Programs (FDPs) covering emerging pedagogies, research methodologies, technological advancements, and teaching innovations; achieve 90% faculty participation by 2027
- d) Establish Teaching-Learning Centers (TLCs) for pedagogical innovation, peer learning communities, curriculum development resources, and documentation of best practices
- e) Implement transparent, objective performance appraisal systems linking evaluation to teaching excellence, research productivity, student feedback, and community engagement
- f) Introduce incentive schemes including monetary awards for publications, patents, funded research, and teaching innovations
- g) Propose Revised Faculty Consultancy & Testing Services G.R. to DTE featuring:
- h) Streamlined approvals: <₹10L (HOD, 5 days), ₹10-25L (Principal, 10 days), >₹25L (Committee, 15 days)
- i) Consultancy engagement model: <₹10L (60% college, 30% faculty, 10% research); ₹50L+ (45% college, 45% faculty, 10% research)
- j) Testing Services: Soil Testing Lab (STL), Concrete Testing Lab (CTL), Material Testing supporting academic operations
- k) Consultancy Cell with dedicated coordinator managing client liaison, contracts, billing, and quality assurance
- l) Establish partnerships with IITs, NITs, and international universities for faculty exchange programs, collaborative research, and global academic exposure
- m) Support faculty participation in national and international conferences through travel grants and publication support
- n) Targets by 2031: 15-20 faculty recruited, 75% Ph.D. qualification, 90% faculty FDP participation, 40-50% faculty consultancy engagement generating ₹50-60L annually, ₹10L testing services annually, faculty recognized nationally/internationally

2.4.6 PILLAR 6: INCLUSIVITY, ACCESSIBILITY & COMMUNITY IMPACT

SSEC commits to establishing itself as an inclusive institution ensuring equitable access to quality engineering education for all students regardless of economic background, gender, disability status, or social category. The

institution will maintain strong community connections through outreach, skill development, and local problem-solving initiatives.

Key Initiatives:

- a) Implement zero-fee education policy for all girl students, covering tuition, examination fees, and essential materials by 2027; maintain indefinitely through alumni endowment and institutional revenue growth
- b) Provide merit-based and need-based scholarships to 30% of student population (300+ students) by 2027, achieving ₹10 Crore cumulative scholarship investment by 2035
- c) Recruit and support 50+ tribal and rural students annually through outreach programs to tribal and rural schools within 100 km radius; provide targeted scholarships, mentoring, peer support, and residential accommodation
- d) Strengthen Gender Sensitization Cell and Equal Opportunity Cell conducting monthly awareness programs, addressing grievances, maintaining zero-tolerance harassment policies, and promoting inclusive campus culture
- e) Provide comprehensive support services for Persons with Disability (PwD) including accessible infrastructure, assistive technology, personalized academic accommodations, and counseling
- f) Establish professional counseling center with mental health support services addressing student wellbeing, career concerns, and social integration
- g) Enroll 100% final-year students in National Apprenticeship Promotion Scheme (NAPS) providing on-the-job training, stipends, and practical experience in registered training centers
- h) Develop 5+ NSQF-aligned skill development programs in partnership with Sector Skill Councils; target 300+ annual skill certifications by 2035
- i) Implement 2 village adoption programs developing technical solutions for local water, sanitation, energy challenges through student projects; conduct monthly environmental sustainability workshops
- j) Support NSS activities with 100+ student participants annually engaging in community service, disaster relief, and social development initiatives
- k) Create social entrepreneurship opportunities addressing regional development needs; incubate 3-5 social enterprises by 2035

2.4.7 FINANCIAL INVESTMENT & SUSTAINABILITY MODEL

- The IDP requires total 10-year investment of ₹51.80 Crore comprising ₹44.80 Crore (85%) for infrastructure development and ₹7.00 Crore (15%) for programs and operations. Funding will be sourced through diverse channels:
- Government allocation (₹35.00 Cr, 67.57%): State and Central government schemes, RUSA funding
- Research grants (₹3.40 Cr, 6.56%): AICTE, DST, SERB, CSIR, SSIP grants
- Industry partnerships (₹5.00 Cr, 9.65%): Sponsored research, PPP models, equipment donations
- Institutional revenue (₹4.00 Cr, 7.72%): Consultancy, testing services, skill programs, facility rentals
- CSR and philanthropic (₹4.40 Cr, 8.49%): Alumni endowment, CSR initiatives, community donations
- SSEC will generate operational revenue through research grants (₹50L/year), consultancy services (₹25-30L/year), testing services (₹10-15L/year), alumni endowment income (₹5-7L/year), and skill program revenues (₹5L+/year) to support institutional operations and enhance academic programs, while remaining primarily government-funded.

2.4.8 IMPLEMENTATION ROADMAP: FIVE PHASES

- The IDP is operationalized through five strategic phases enabling systematic capacity building, infrastructure development, and institutional maturation:
- Phase 1 (2026-27) - Foundation & Governance: IDP governance structure, baseline data collection, faculty recruitment proposal, digital infrastructure deployment commencement, Consultancy G.R. drafting and submission
- Phase 2 (2027-28) - System Building & Program Launch: IC and EC programs operational, smart classroom Phase 1 completion, industry partnerships formalization, hostel reconstruction commencement, professional partnerships (IGS, BIS) activation
- Phase 3 (2028-29) - Research & Industry Growth: External research funding acquisition, STL/CTL accreditation completion, CoEs planning,

testing services launch, consultancy project scale-up (20-30 projects/year)

- Phase 4 (2029-30) - Accreditation & Consolidation: NBA institutional accreditation achievement, NIRF Top 200 ranking, GSIRF Top 10 position, hostel Phase 1 completion, testing operations ₹10L annual, consultancy operations ₹10L annual
- Phase 5 (2030-35) - Excellence & Recognition: Institutional autonomy realization, CoEs maturity, faculty Ph.D. 80%, enhanced institutional operations, national brand recognition, top 100 engineering colleges positioning

2.4.9 KEY PERFORMANCE INDICATORS & MONITORING

SSEC commits to rigorous monitoring of institutional progress through comprehensive Key Performance Indicators (KPIs) tracked at multiple governance levels. Monthly departmental reviews, quarterly IQAC assessments, semi-annual Steering Committee evaluations, and annual institutional comprehensive evaluations will ensure real-time course correction and continuous improvement. KPI dashboard with color-coded status (GREEN/YELLOW/RED) will enable rapid identification of bottlenecks and implementation of corrective actions.

- Academic KPIs: Programs accredited, interdisciplinary participation, LMS coverage, faculty digital pedagogy training
- Research KPIs: Publications, externally funded projects, IP filings, student POCs, startup incubation
- Industry KPIs: Active partnerships, internship participation, placement rates, salary enhancement, industry mentorship
- Infrastructure KPIs: Smart classrooms operational, digital infrastructure readiness, green campus progress, hostel capacity
- Faculty KPIs: Ph.D. qualification, FDP participation, consultancy engagement, research publications
- Inclusivity KPIs: Scholarship beneficiaries, tribal/rural students, mentored students, counseling services utilization

2.4.10 ALIGNMENT WITH NATIONAL PRIORITIES

This IDP comprehensively aligns with National Education Policy 2020 principles emphasizing multidisciplinary education, outcome-based learning, industry partnerships, research excellence, and inclusive education. The plan supports

Skill India initiatives through NSQF-aligned programs, NAPS apprenticeships, and Sector Skill Council collaborations. It advances Atmanirbhar Bharat vision through startup incubation, institutional self-reliance, and in-campus maintenance independence. It champions sustainability through green campus infrastructure, renewable energy, and SDG alignment. It supports Khelo India and Olympic 2036 preparation through sports complex development and athlete training facility establishment.

2.4.11 CONCLUSION

SSEC's Institutional Development Plan 2026-2035 represents a transformational commitment to academic excellence, research leadership, institutional autonomy, and inclusive education. Through systematic implementation of six integrated strategic pillars supported by ₹51.80 Crore investment and rigorous KPI monitoring, SSEC will evolve from a traditional government engineering college into a premier autonomous institution recognized nationally for teaching excellence, research innovation, industry partnerships, and social responsibility. By 2035, SSEC aspires to be among India's top 100 engineering colleges, the leading institution in Saurashtra region, and a model for government engineering college excellence demonstrating that institutional autonomy, academic excellence, and educational quality are achievable through disciplined execution, professional management, and unwavering commitment to student success and societal impact.

3 SWOC ANALYSIS:

3.1 Strengths:

- 43-year legacy: Continuous AICTE approval since 1983 with established alumni network
- Government backing: Secure funding ensuring operational stability
- Qualified faculty: 81 teachers (2 Professors, 10 Associate Professors, 69 Assistant Professors)
- Comprehensive programs: 4 UG and 3 PG specializations meeting diverse career paths
- Modern infrastructure: 80-acre campus with equipped labs and facilities
- Industry connections: Established relationships for internships and placements
- Strategic location: Proximity to Bhavnagar industrial area
- Student support: IQAC, grievance redressal, anti-ragging, women development cells
- Consistent outcomes: Good placement rates with industrial recognition
- Regulatory compliance: Strong AICTE approval history and audit readiness

3.2 Weaknesses:

- Faculty deficiency: AICTE report flags need for 15-20 additional faculty
- Research gap: Limited publications
- Accreditation status: Currently not accredited to NBA
- Hostel constraint: Only 20 boys' beds; limiting outstation admissions
- Digital infrastructure gap: Absence of LMS (Learning Management System), ERP Enterprise Resource Planning) and limited internet bandwidth
- International absence: No global partnerships or student exchange programs
- Operational revenue potential: Limited current consultancy services and non-government funding to be developed
- Technology lag: Limited integration of AI, IoT, Industry 4.0 in curriculum
- Placement salary: Average below national engineering college benchmark

3.3 Opportunities:

- NEP 2020 framework: Curriculum redesign flexibility and skill-based learning integration

- Research grants: SERB (Science and Engineering Research Board), CSIR (Council of Scientific and Industrial Research), AICTE schemes for sponsored research projects
- Emerging tech demand: Growing requirement for AI, IoT, data analytics engineers
- Startup incentives: Government support for incubation and innovation centers
- Green initiatives: Solar installation and sustainability projects alignment
- International collaborations: MoU opportunities for dual degrees and research
- Digital education: SWAYAM platform and MOOC development expansion
- Skill certification: Industry body partnerships for value-added programs
- Alumni engagement: Network leverage for mentoring, funding and placements

3.4 Challenges:

- Faculty competition: Private colleges competing aggressively for faculty recruitment
- Budget constraints: Limited allocation for large-scale infrastructure modernization
- Admission quality: Balancing government quota requirements with academic standards
- Technology pace: Rapid changes requiring continuous lab and curriculum updates
- Staff limitations: Limited non-teaching support affecting administrative efficiency
- Regulatory compliance: Government policy changes and AICTE compliance overhead
- Infrastructure aging: Hostel blocks requiring major reconstruction investment
- Global standards: Meeting international accreditation requirements
- Partnership development: Building strong industry linkages in competitive market
- Research culture: Establishing research mindset with limited funding and infrastructure

4 INSTITUTIONAL GOALS AND OBJECTIVES (ALIGNED TO NEP 2020)

4.1 Short-term goals (1–2 years):

- Establish IDP Implementation Committee for coordinated execution and monitoring
- Implement Learning Management System (LMS) for blended learning capability
- Begin hostel reconstruction project with approved designs and funding allocation
- Request to recruit new faculty members across departments to address deficiency
- Launch 2 online courses (MOOCs) on SWAYAM national platform
- Request to deploy Wi-Fi 7 or next generation infrastructure across entire campus
- Request to initiate curriculum redesign aligned with NEP 2020 and CBCS framework
- Initiate comprehensive revision of Faculty Consultancy & Testing Services
- Submit Faculty Consultancy & Testing Services G.R. with streamlined project approvals (5-15 days) and automatic annual adjustment mechanisms to ensure perpetual compliance without periodic revision

4.2 Medium-term goals (3–5 years):

- Achieve academic accreditation
- Establish 3 CoEs by 2030, expanding to 5 CoEs by 2035 in core disciplinary areas
- Request to recruit new faculty members across departments to address deficiency so as to reach near-optimal 1:15 student-faculty ratio
- Enhance research funding annually through external sources
- Complete hostel reconstruction
- Increase UG and PG placement rates with enhanced salary packages
- Implement integrated ERP system for administrative and academic management
- Develop Phase 1: Modernize 20 existing classrooms; Phase 2: Install 30 new smart classrooms with interactive and digital learning infrastructure in existing building

- Proposal of new academic building with ICT enabled minimum 10 classrooms, faculty seating arrangement, labs and other facilities
- Proposal of new Students Amenities Centre building
- Proposal of new 11 kV substation building
- Launch Instrumentation & Control Engineering program (0 to 30 seats by 2027-28)
- Activate IGS student chapter and initiate geotechnical research collaboration
- Complete BIS MoU and initiate Soil Testing Lab & Concrete Testing Lab accreditation
- Launch Consultancy Cell and accept first consultancy projects (~ 20 to 30 projects per year)

4.3 Long-term goals (5+ years):

- Achieve sustained institutional accreditation with consistent quality metrics
- Maintain accreditation across multiple programs and disciplinary domains
- Establish 3 CoEs by 2030, expanding to 5 CoEs by 2035
- 10 patents filed by 2030
- Generate annual revenue from consultancy and skill development services
- Develop 5 online courses accessible globally through open education platforms
- Establish 3 international MoUs with universities across Asia, Europe, Americas
- Achieve ranking in top 100 engineering colleges nationally
- Build robust alumni endowment fund of ₹1 Cr. lacs for scholarships and mentoring
- Develop faculty consultancy engagement with 20+ active consultants
- Testing Services: Standardize to ₹10 Lakh/year by 2030, growing to ₹25–30 Lakh/year by 2035.
- Consultancy Services: Standardize to ₹10 Lakh/year by 2028, growing to ₹100–120 Lakh/year by 2035
- Enhance academic operations through institutional revenue (consultancy, testing, research) supporting program excellence

4.4 Implementation of multidisciplinary curriculum:

Integrate interdisciplinary courses across engineering domains. Include 15-20% content from complementary disciplines. Develop project-based modules

combining Civil, Mechanical, Electrical and IT specializations. Support through cross-departmental faculty collaboration and shared laboratory facilities.

4.5 Promotion of research and innovation:

Establish dedicated R&D cell with seed funding. Create innovation incubation center supporting 10 startups by 2035. Facilitate faculty research and international collaborations. Implement patent filing support system. Target: 10 patents, 100+ publications.

4.6 Industry-academia collaboration:

Formalize MoUs with additional 20+ to existing leading companies for internships, projects and curriculum advisory. Establish industry expert lecture series and guest faculty programs. Conduct joint research initiatives and sponsored projects. Create industry-led capstone design projects for final-year students.

4.7 Enhanced employability and entrepreneurship:

Develop comprehensive employability curriculum with soft skills, communication and leadership training. Establish finishing school for interview preparation and professional etiquette. Support 10 student-led startups through incubation center. Achieve 80% UG and 100% PG placement with average salary ₹7.5 LPA. Develop 25% student participation in entrepreneurship programs by 2035.

4.8 Use of digital tools and blended learning:

Implement LMS and virtual labs for experiential learning. Deploy WiFi 7 or next gen campus-wide enabling seamless digital access. Create 50 Smart Classrooms total with interactive boards and AI-enabled learning analytics. Develop 5 online courses on SWAYAM platform. Integrate learning analytics for adaptive learning pathways. Support 25% courses with blended delivery by 2030.

4.9 Community engagement and local problem-solving:

Establish community engagement cell implementing 2 village adoption programs. Develop technical solutions for local water, sanitation, energy challenges through student projects. Conduct monthly awareness workshops on environmental sustainability and social responsibility. Support NSS

activities with 100+ students annually. Create social entrepreneurship opportunities addressing regional development needs.

5 DEVELOPMENTAL/KEY FOCUS AREAS

5.1 Academic Excellence

5.1.1 CBCS, OBE & multidisciplinary curriculum framework:

Institute will propose to redesign its curriculum framework aligned with Choice-Based Credit System (CBCS) and Outcome-Based Education (OBE) principles to enable student flexibility and measurable learning outcomes. The multidisciplinary framework will integrate 15-20% content from complementary engineering domains, allowing students to develop broader competencies beyond their specialization while maintaining rigorous disciplinary expertise.

5.1.2 SWAYAM, NPTEL and other national digital platforms:

Institution will propose to integrate SWAYAM and NPTEL courses into the academic curriculum, enabling students to access high-quality content from premier institutions nationwide. Institute faculty will develop at least 5 courses for the SWAYAM platform by 2030, contributing to the national open education ecosystem while enhancing institutional visibility and creating reusable educational resources.

5.1.3 Bilingual content delivery and vernacular medium support:

Institute will propose to develop bilingual course materials in English and Gujarati medium to support diverse learning preferences and enhance comprehension, particularly for first-generation engineering students. This will include translated lecture notes, video content with subtitles and vernacular term explanations to promote inclusivity while maintaining academic rigor.

5.1.4 Student-centric teaching methodologies (project-based, flipped classrooms):

Institute will propose to transition from traditional lecture-based teaching to student-centric approaches including project-based learning, flipped classrooms and peer teaching models.

5.1.5 Curriculum aligned with global standards and SDGs:

Institute will propose to design curriculum that will be benchmarked against international engineering standards (Washington Accord, EUR-ACE) and aligned with UN Sustainable Development Goals (SDGs) to ensure global competitiveness and social responsibility.

5.1.6 Choice-Based Credit System (CBCS) and interdisciplinary project work:

Institute will propose to implement full CBCS flexibility allowing students to choose electives across departments and pursue interdisciplinary projects combining civil, mechanical, electrical and IT specializations. Capstone projects will mandate interdisciplinary teams to develop comprehensive solutions for real-world problems, simulating professional collaborative environments.

5.1.7 Integration of Indian Knowledge Systems:

Institute will propose to add more contents in the curriculum of existing Indian Knowledge Systems (IKS) subject.

5.1.8 New and emerging technology programs:

Institute will propose to develop specialized programs in AI/ML, IoT, Cyber Security and Data Analytics aligned with industry demand and GTU's revised syllabus.

- Institute will establish Instrumentation & Control Engineering as a new 4-year B.E. program with 30 seats commencing 2027-28, addressing India's critical shortage of automation engineers.

5.1.9 Development of bridge and foundation courses for lateral entries:

Institute will propose to add more contents in existing bridge courses for first years and lateral entry students to address academic gaps in fundamental concepts.

5.1.10 Learning Management Systems (LMS), virtual labs and smart classrooms:

Institute will propose to deploy an integrated LMS platform supporting 50% course coverage, enabling 24/7 access to course materials, assignments and assessments.

5.1.11 Problem Based Learning (PBL):

Institute will propose to add more categories of consents in current PBL courses so that students solve real-world problems in small groups, developing creativity and practical problem-solving skills.

5.1.12 Self-Learning (NPBL):

Institute will encourage self-directed learning through online platforms, digital libraries and curated learning pathways where students pursue personalized learning goals aligned with their career aspirations. The LMS will provide recommendation systems suggesting relevant courses, projects and resources, fostering independent thinking and lifelong learning habits essential for engineering professionals.

5.1.13 Others:

Institute will explore and implement innovative pedagogical approaches including experiential learning through industry internships, research participation and community engagement projects. The institution will also establish Teaching-Learning Centers (TLCs) for continuous pedagogical innovation, conduct annual curriculum reviews incorporating stakeholder feedback and maintain alignment with NEP 2020 principles of flexibility, multidisciplinary and all-round development.

5.2 Faculty Development:

5.2.1 FDPs, Refresher Courses and Research Opportunities:

Institute will encourage faculties to conduct and participate in domain specific Faculty Development Programs (FDPs). Institute will encourage faculties for refresher courses and provide research opportunities to enable them to pursue research projects, publications and innovation activities aligned with institutional priorities.

5.2.2 Performance Appraisal and Incentivization:

As per prevailing government norms, these do not come under purview of institute. Faculties are motivated and inspired to excel in academic and research performance they will be rewarded with best thesis award, best paper award, best teacher awards etc. GTU has already been doing this activity.

5.2.3 Support for Higher Studies (Ph.D., Post-Docs, etc.):

Institute will encourage faculties to go for high studies like Ph. D., Post-Docs etc. as per prevailing norms of DTE, AICTE, QIP etc.

5.2.4 Teaching-Learning Centres (TLCs):

Institute will propose to establish dedicated Teaching-Learning Centers (TLCs) serving as innovation hubs for pedagogical experimentation and faculty professional development. TLCs will conduct workshops on effective teaching methodologies, facilitate peer learning communities, provide resources for curriculum development and document best practices to institutionalize teaching excellence.

5.2.5 Others:

Institute will propose to introduce mentorship programs pairing senior and junior faculty for professional guidance and knowledge transfer. International faculty exchange programs, collaborative research opportunities with IITs/NITs and participation in international conferences will be supported to enhance faculty expertise and global exposure.

5.3 Research and Innovation

Current Status: Institute currently has little bit lower publications per faculty per year, minimal funded research projects and limited research infrastructure. The institution lacks dedicated research centres and formal innovation support mechanisms.

5.3.1 Creation of research clusters & Research Parks

Institute will propose to establish 3 Research Centres of Excellence by 2030 in core disciplinary areas (Civil Engineering-Structural

Engineering, Electrical Engineering-Power Systems, IT-Artificial Intelligence) and 2 additional centres by 2035. These clusters will facilitate collaborative research, provide specialized equipment and attract research funding while creating innovation ecosystems with industry partnerships and startup incubation facilities.

5.3.2 SSIP, Incubation & start-up ecosystem (Total grant received and utilized)

Institute will propose to establish an Innovation Incubation Centre supporting 10 student-led startups by 2035. Institute will leverage SSIP (Social Start-up India Programme) and participate in government funding schemes (DST, STEM, GUJCOST etc.), targeting to receive ₹50+ Lakh through grants for social innovation and entrepreneurship by 2030.

5.3.3 IPR awareness and patent facilitation

- Institute will propose to conduct quarterly IPR awareness workshops for faculty and students. Institute will provide financial support for patent applications and aim to file 10 patents filed by 2030 through faculty research and student innovations.

5.3.4 R&D Cell with seed funding

Institute will propose to establish a dedicated R&D Cell with seed funding for minor exploratory projects.

5.3.5 Innovation and Entrepreneurship Development Centres Cell (IEDC)

Institute will propose to establish an IEDC serving as one-window support system for student innovators and entrepreneurs, providing mentoring, incubation facilities, networking opportunities and access to funding. IEDC will conduct bootcamps, pitch competitions and business plan development workshops, targeting to nurture 10 startups by 2035.

5.3.6 Partnerships with R&D institutions, IITs/NITs

Institute will propose to formalize research collaborations with IITs, NITs and national research laboratories through MoUs enabling joint research projects, student/faculty exchange and shared research facilities. These partnerships will facilitate access to advanced equipment, expert

mentoring and collaborative publications, enhancing Institute's research capacity and credibility.

5.3.7 Others (All other actionable points taken by the institutes)

Institute will propose to establish Research Ethics Committee for oversight of faculty research, conduct annual research symposiums showcasing institutional research achievements and create incentive schemes for high-impact publications. International research collaborations through visiting researcher programs and joint publications with global universities will be actively promoted.

5.4 Infrastructure Development

5.4.1 No. of Classrooms, labs, hostels, Seminar Hall (Physical Infrastructure)

Institute will propose to construct new academic building with 10 ICT-enabled classrooms, modernize 20 existing classrooms and expand hostel facility with new boys' 1 New Boys' Hostel Block (50 Rooms / 200 Beds Capacity). Additional seminar halls, new canteen building, departmental laboratories and community centre will be developed to create comprehensive learning ecosystem.

5.4.2 Digital classrooms, ERP, LMS (Digital Infrastructure)

Institute will propose to deploy integrated LMS platform supporting 50% course coverage within two years, enabling 24/7 access to course materials and assessments. Enterprise Resource Planning (ERP) system implementation will streamline institutional academic and administrative activities. The WiFi 7 or next generation infrastructure will provide seamless connectivity across campus.

5.4.3 Centres of Excellence (CoEs) in core domains

Institute will propose to establish Centres of Excellence 3 CoEs by 2030 and 5 by 2035 These CoEs will serve as specialized research centres with state-of-the-art equipment, attracting industry collaboration, external research funding and enabling high-impact research in emerging technology domains.

5.4.4 Campus-wide Wi-Fi and e-library access

Institute will propose to deploy WiFi 7 or next generation infrastructure providing high-speed, reliable internet connectivity across entire 80-acre campus enabling seamless access to online resources. Digital e-library, more online journals, e-books will be established providing 24/7 access to academic resources for students and faculty.

5.4.5 Smart campus infrastructure— CCTV, energy efficiency, green spaces

Institute will propose to implement comprehensive CCTV surveillance system for campus safety and security monitoring, Use of existing solar rooftop and energy-efficient LED lighting reducing operational costs. Rainwater harvesting, wastewater recycling, waste management systems and green spaces will be developed achieving green campus certification by 2030.

5.4.6 Hostel facilities for rural and tribal students

Institute will propose to establish special accommodation provisions and mentoring support will be provided for rural and tribal students, with scholarships and stipends ensuring accessibility for economically disadvantaged students.

5.4.7 Others

Institute will propose to develop multipurpose auditorium, professional counselling centre with mental health support services and sports complex with modern facilities. Advanced laboratories for AI/ML, IoT, Data Analytics and virtual reality will be equipped with state-of-the-art technology supporting emerging curriculum and research initiatives.

5.5 Industry Linkages and Placement

5.5.1 MoUs with Industries:

Institute will propose to formalize partnerships with minimum 20 leading companies through Memoranda of Understanding covering internships, projects, curriculum advisory and placement assistance. Industry partnerships will include provision of live projects, equipment donations,

expert lectures and collaborative research opportunities enhancing student exposure.

5.5.2 Internship and Placement Cells:

Institute will propose to strengthen placement cells with dedicated training coordinators, establishing mandatory 6-month internships for all students in their pre-final year. Placement-linked training will be provided and placement cell will maintain industry database, conduct pre-placement talks and facilitate campus recruitment drives.

5.5.3 Industry-led curriculum advisory board

Institute will propose to establish Curriculum Advisory Board comprising industry professionals, alumni and academic experts meeting annually to review curricula for industry relevance. Recommendations will ensure emerging skill requirements are incorporated and curriculum evolves with industry demands keeping Institute programs competitive and employment-ready.

5.5.4 New Industry-Led Programmes Introduced:

Institute will propose to develop co-curricular programs including industry-led workshops, certification courses and skill enhancement modules. Joint diploma programs with industry partners in specialized areas (Advanced Manufacturing, Digital Transformation, etc.) will provide students additional credentials enhancing employability.

5.5.5 Finishing Schools or Placement Readiness Programs:

Institute will propose to conduct intensive 4-week finishing schools before placement season covering interview skills, group discussions, technical preparation and soft skills. Mock interviews with industry professionals will provide realistic practice, while personality development and career counselling will prepare students for corporate environments.

5.5.6 Joint certification programs with industry partner

Institute will propose to develop joint certification programs with industry leaders enabling students to earn recognized industry credentials alongside academic degrees. Certifications in cloud

computing, cybersecurity, digital marketing and project management will be integrated into curriculum providing dual credentials enhancing market value.

5.5.7 Participation in Industry Conclaves, Workshops and Expos:

Institute will propose to encourage active faculty and student participation in industry conferences, technical expos and workshops organized by professional bodies. Institute will host annual technical expos showcasing student projects and research innovations to industry representatives, fostering networking and collaboration opportunities.

5.5.8 Student technical activities such as hackathons, robotics competitions (e.g., Robocon, Coding & Quiz contests) and related events

Institute will propose to organize annual hackathons and coding competitions, sponsor student teams for Robocon and national technical competitions and conduct quiz contests stimulating technical innovation and competitive excellence. Participation in national-level competitions will enhance student recognition and develop competencies in emerging technologies.

5.5.9 Others

Institute will propose to establish student professional societies aligned with IEEE, ACM, IGS. IEI and other international bodies fostering professional development. Industry mentorship programs pairing students with working professionals will provide career guidance and real-world insights.

5.6 Skilling and Employability

5.6.1 National Skills Qualifications Framework (NSQF)-aligned programs

Institute will propose to develop skill development programs aligned with NSQF levels ensuring recognized credentials.

5.6.2 Collaborate with Sector Skill Councils for certification-based programs

Institute will propose to partner with relevant Sector Skill Councils (Construction SSC, Manufacturing SSC, IT SSC) to integrate certification-based programs into curriculum. Institute will become an authorized training partner enabling students to earn nationally recognized skill certifications enhancing employment prospects.

5.6.3 Sector Skill Councils partnerships

Institute will propose to establish formal partnerships with sector skill councils for curriculum design, trainer certification and assessment standards. Regular dialogue with SSCs will ensure programs remain aligned with industry skill requirements and certification standards.

5.6.4 Apprenticeships under National Apprenticeship Promotion Scheme (NAPS)

Institute will propose to enroll all final-year students in apprenticeships under NAPS providing on-the-job training and stipends while completing academic degrees. NAPS participation will ensure students gain practical experience in registered training centres meeting regulatory compliance and industry standards.

5.6.5 Skill gap analysis and mapping with regional industry needs

Institute will propose to conduct annual skill gap studies through surveys and focus group discussions with employers identifying emerging skill requirements. Regional industry need assessments will guide curriculum updates ensuring Institute programs address actual market demands in Bhavnagar and surrounding industrial areas.

5.6.6 Credit-based skill modules integrated with curriculum

Institute will propose to introduce minimum 4-5 credit-bearing skill modules integrated into BE curriculum covering communication, digital literacy, project management and entrepreneurship. Students will earn academic credits for skill module completion, incentivizing participation while ensuring comprehensive employability development.

5.6.7 Career Counselling and Job Fairs

Institute will propose to provide comprehensive career counselling through dedicated counsellors guiding students in career planning and specialization selection. Quarterly job fairs featuring 30+ companies annually will provide placement opportunities, with special fairs organized for emerging technology roles.

5.6.8 Others

Institute will propose to establish entrepreneur development programs supporting student-led business ventures. Alumni career stories and industry case studies will be regularly shared to inspire and guide current students in career planning.

5.7 Accreditation Readiness

5.7.1 NBA, NIRF, GSIRF Process Improvement Plan

Institute has been working rigorously for getting all programmes accredited since long. Through systematic gap analysis, targeted process improvements and regular mock audits coordinated by Accreditation Readiness Committee, institute plans to achieve all programmes NBA accreditation by 2030. Simultaneously, institute will enhance NIRF ranking and GSIRF position through strengthened research funding, faculty Ph.D. qualifications (80% by 2035), industry partnerships and placement excellence. Continuous quality monitoring via KPI dashboard with monthly IQAC reviews will ensure sustained accreditation compliance and progressive institutional excellence aligned with autonomy vision by 2035.

5.7.2 Dedicated Internal Quality Assurance Cell (IQAC) cell

Institute will propose to strengthen IQAC with adequate staffing, resources and autonomy to conduct regular internal audits, stakeholder feedback collection and quality improvement initiatives. IQAC will coordinate accreditation preparation, monitor KPIs and generate annual quality reports.

5.7.3 Internal academic and administrative audit system

Institute will propose to establish systematic internal audit procedures reviewing academic delivery, administrative processes and support services annually. Audit findings will identify gaps and drive continuous improvement across institutional operations ensuring compliance with quality standards.

5.7.4 Benchmarking against institutional excellence and SDG indicators

Institute will propose to benchmark Institute performance against national standards, similar institutions and SDG indicators identifying improvement areas. Comparative analysis will guide strategic planning and resource allocation toward achieving excellence in teaching-learning quality and sustainability.

5.7.5 Faculty and staff sensitization on accreditation processes

Institute will propose to conduct regular training workshops for faculty and staff on accreditation requirements, quality standards and documentation procedures. Sensitization will build institutional awareness and commitment to quality culture and accreditation objectives.

5.7.6 Quality circles and feedback loops for continuous improvement

Institute will propose to establish faculty and student quality circles meeting monthly to identify quality issues and suggest improvements. Systematic feedback collection from students, alumni and employers will inform curricular changes and institutional enhancement initiatives.

5.7.7 Others

Institute will propose to maintain comprehensive accreditation documentation and evidence repositories. Regular communication with accreditation bodies and participation in pre-accreditation workshops will ensure preparedness.

5.8 Alumni Engagement

5.8.1 Alumni portal

Institute will propose to develop interactive alumni portal enabling online community building, job board access and event registrations. Portal will facilitate networking among alumni, enable knowledge sharing and provide career advancement opportunities.

5.8.2 Endowment creation and CSR mobilization

Institute will propose to establish endowment fund targeting ₹1 Crore corpus by 2035 through alumni donations and CSR initiatives. Endowment income will support faculty research and infrastructure development.

5.8.3 Alumni-led scholarships and awards

Institute will propose to encourage alumni to create named scholarships and awards recognizing outstanding students. Annual awards ceremony will celebrate alumni-sponsored scholarships creating recognition and motivation for student excellence.

5.8.4 Mentorship programs with alumni

Institute will propose to establish alumni mentorship programs pairing working professionals with current students providing career guidance, industry insights and professional networking opportunities. Mentors will share real-world experiences and guide career planning.

5.8.5 Others

Institute will propose to conduct annual alumni meets and homecoming celebrations fostering institutional connection. Alumni success stories will be documented and shared inspiring current students and building institutional brand.

5.9 Inclusivity and Outreach

5.9.1 Programs for socially and economically weaker sections

Institute will propose to provide scholarships covering 30% of student population (merit and need-based support) enabling access for

economically disadvantaged students. Fee waivers and book allowances will remove financial barriers to engineering education.

5.9.2 Outreach programs in tribal and rural schools for admissions

Institute will propose to conduct annual outreach programs in 5+ tribal and rural schools within 100 km radius organizing awareness sessions and encouraging STEM participation. Admission counselling and merit scholarships will facilitate enrollment of capable students from underrepresented backgrounds.

5.9.3 Tribal, rural and women participation strategies

Institute will propose to set reserved admission quotas for tribal, rural and women students aligning with government policies and institutional equity goals. Targeted recruitment campaigns will promote engineering careers to women and underrepresented communities.

5.9.4 Gender Sensitization Cell and Equal Opportunity Cell

Institute will propose to strengthen Gender Sensitization Cell and Equal Opportunity Cell conducting awareness programs, addressing grievances and promoting inclusive campus culture. These cells will ensure zero-tolerance policies on discrimination and harassment.

5.9.5 Special quota schemes, scholarships and support groups

Institute will propose to implement special quota schemes for SC/ST/OBC/EWS/PwD students aligning with government policies and provide targeted scholarships. Student support groups for different communities will provide mentoring, counseling and peer support fostering sense of belonging.

5.9.6 Others

Institute will propose to establish differently-abled (PwD) support services including accessible infrastructure, assistive technology and personalized academic accommodations. Counseling services addressing mental health, career concerns and social integration will support holistic student development.

5.10 Action Plan / Implementation Strategy or Roadmap

The action plan follows the NEP 2020 implementation principle: clear objectives, task breakdown, responsibility allocation, collaborative implementation, Key Performance Indicators (KPIs), technological monitoring, resource allocation, feedback and continuous review. This comprehensive roadmap delineates strategic initiatives aligned with Institute's vision of institutional autonomy by 2035, incorporating new programs (IC and EC), professional partnerships (IGS, BIS) and faculty engagement mechanisms (Revised Consultancy G.R.) to drive research excellence, industry linkage and financial sustainability.

5.10.1 Integrated Action Plan

Institutional development initiatives with clear responsibility assignment, timelines, resource allocation and measurable outcomes:

Table 5.1 Integrated Action Plan - Strategic Initiatives for Institutional Development (2026-2035)

S.N.	Activity	Responsible Cell/Department	Timeline	Key Performance Indicator (KPI)
1	Curriculum Revision - NEP-aligned, outcome-based, multidisciplinary CBCS with SWAYAM/NPTEL integration, bilingual content, PBL, and 50 smart classrooms	GTU Coordinator, Department Heads, SPOC NPTEL	2026-27 to 2029-30	80% curriculum NEP-aligned by 2027; 15-20% multidisciplinary content; 5 SWAYAM courses; 50% bilingual delivery; 30% PBL courses; LMS 80% coverage; 50 smart classrooms; 50% blended learning
2	Digital Infrastructure for strengthening E-Governance - Integrated ERP system, LMS platform, WiFi 7, e-library.	IT Department, Account Officer, Admin Officer, Institute website coordinator, Internet related matters coordinator	2026-27 to 2028-29	ERP operational by 2027; LMS 80% coverage by 2028; WiFi 7 100% coverage by 2028; e-library;
3	Industry Partnerships & Placement - Formalize Additional to existing 20+ MoUs with leading industries; Curriculum Advisory Board; 100% internships; Annual technical expos; Hackathons	Training & Placement Cell	2026-27 to 2030-31	Additional 20 MoUs by 2027 (target: 30 by 2035); 40+ companies recruiting annually; 100% UG internships by 2028; 80% UG, 100% PG placement by 2030; rise in hackathon participants

4	Research Promotion & Innovation - Establish 3 Centers of Excellence (Civil-Structural, Electrical-Power, IT-AI/ML/IoT), R&D Cell with seed funding	R & D Cell, Incubation Cell, SSIP Co-Ordinator, IIC (Institute Innovation Council) Cell	2026-27 to 2035-36	3 CoEs established by 2030, 5 by 2035; annually; Rise in publications per faculty; 25 patents cumulative by 2035; 10 startups incubated;
5	Accreditation Readiness & Quality Assurance - NBA institutional accreditation by 2030; NIRF Top 200 by 2030; GSIRF Top 10; IQAC strengthening;	IQAC Coordinator, Institutional NBA Co-Ordinator, Institute survey coordinator	2026-27 to 2032-33	Institutional accreditation by 2030; 2-3 program accreditations by 2032; NIRF Top 200; GSIRF Top 10; 100% faculty annual 40-hour FDPs; 12 internal audits/year; 5000+ stakeholder feedback; 80% criteria compliance; 70% improvement actions
6	International Linkage & Alumni Engagement - 3 international MoUs	Internationalization Cell, Alumni Relations Officer, R & D Cell, SSIP Coordinator	2026-27 to 2035-36	3 international MoUs by 2035; 5+ joint research projects; 10+ collaborative publications;
7	IC Program Launch - Instrumentation & Control Engineering program (0→30 seats by 2027-28): MoU with leading industries	IC HoD, Principal	2026-27 to 2027-28	Proposal to recruit new faculties as per cadre ratio by 2027; Lab operational by Jul 2027; 30 students admitted Aug 2027; 80% IC internship placement by 2028; ₹6.0-6.5 LPA average salary by 2030; 2+ research papers from IC faculty by 2030
8	EC Program UG Revival - Electronics & Communication: Est. 2010 (PG only, Currently Freezed). New 60 UG seats + Retain 18 PG (2027-28); Faculty recruitment (4 specialists in VLSI, Embedded, 5G, RF); Lab setup (1 Cr. equipment - FPGA, embedded systems, 5G kits, RF lab); MoU with Dholera industrial	EC HoD, Principal	2026-27 to 2027-28	Proposal to recruit new faculties as per cadre ratio by 2027; 60 UG + 18 PG admitted Aug 2027; 80% placement by 2028; 6.5-7.5 LPA salary; 3+ research papers; 2+ patents by 2035

	cluster & semiconductor ecosystem			
10	Civil Program unfreeze- (60→120 UG seats by 2027-28): MoU with leading industries	Civil & Applied HoDs, Principal	2026-27 to 2027-28	Proposal to recruit new faculties as per cadre ratio by 2027;
11	Mechanical Engineering unfreeze- (30→90 UG seats by 2027-28): MoU with leading industries,	Mechanical HoD, Principal	2026-27 to 2027-28	Proposal to recruit new faculties as per cadre ratio by 2027;
12	Professional Partnerships - IGS & BIS: (a) IGS: Geotechnical research, student chapter (50+ members), faculty mentorship, annual workshops (b) BIS: IS codes curriculum, Quality Auditor certification (40-50 students/year), STL & CTL accreditation, testing services	HoD Applied (IGS Lead), Quality Assurance Cell (BIS Lead), Research Coordinator, Consultancy Coordinator	IGS: Q3 2026 BIS: Q4 2026 Lab accred.: Aug 2028	IGS MoU signed Q3 2026; 50+ IGS student members by 2030; 2-3 geotechnical papers by 2030; BIS MoU signed Q4 2026; 10 Quality Auditor certifications/year; STL & CTL accreditation by Aug 2028; Testing revenue ₹1L (2028) → ₹10L (2035)
13	Proposal for permission of new PG courses in Civil Engineering (Structural Engineering), Electrical Engineering (Power Systems & Renewable Energy), Mechanical Engineering (Production Engineering), and IT Engineering (AI/ML & Cybersecurity)	HoD Applied, HoD Electrical, HoD Mechanical, HoD IT, Principal	2030-31	Proposal to recruit new faculties as per cadre ratio by 2030-31;

5.11 Monitoring & Evaluation

5.11.1 Annual progress report submission to CTE:

Detailed report on KPI achievement, financial utilization and activity completion. Reports will be submitted to CTE/UGC by December each year, highlighting institutional progress against IDP targets and identifying areas requiring corrective action or strategy adjustment.

5.11.2 Mechanism for tracking progress (Online/Offline):

Dashboard system with real-time KPI tracking and departmental performance metrics. The digital dashboard will be accessible to all stakeholders (faculty, students, administrators) promoting transparency, enabling timely intervention for underperforming initiatives and facilitating data-driven decision-making at institutional level.

5.11.3 Mid-term review and feedback loop:

Comprehensive evaluation at Year 5 with stakeholder feedback and strategy refinement. This mid-term review will assess institutional progress toward 2035 vision, identify emerging opportunities/challenges and update implementation strategies ensuring the IDP remains relevant and responsive to evolving educational landscape and industry needs.

5.11.4 Stakeholder involvement:

IQAC, Department Heads, Faculty Senate, Student representatives, Industry partners, Alumni. These stakeholders will participate in quarterly review meetings, annual assessment committees and feedback surveys ensuring diverse perspectives shape institutional development and accountability for IDP implementation across all functions.

5.12 Risk Management

5.12.1 Identification of key risks

Faculty recruitment delays, budget shortfalls, project timeline slippage, technology obsolescence, construction delays. Additionally, risks related

to regulatory changes in educational policies, student enrollment fluctuations and infrastructure disruptions (water/power supply) have been identified through consultation with department heads and administrative staff, with detailed risk registers maintained by respective departments

5.12.2 Mitigation strategies:

Proposal for recruitment as per faculty Cadre ratio and NBA/AICTE norms, diversified funding sources, continuous technology updates, contingency planning. A contingency fund of 10% of annual budget will be reserved for unexpected expenses; monthly risk review meetings will monitor implementation of mitigation strategies; and departmental heads will maintain responsibility for risk identification and escalation ensuring proactive management of institutional challenges.

5.13 Budget and Financial Plan

5.13.1 Total estimated outlay (₹ crore)

Approximately ₹52.00 Crore (with operational and contingency buffer)

5.13.2 Detailed financial requirements for proposed initiatives (As per proposed new initiatives)

Table 5.2 Infrastructure and Initiative Cost Breakdown - Detailed Financial Requirements for Proposed Initiatives (₹ Crore)

Sr. No.	Proposed New Initiative	Cost
		(₹ Crore)
1	New Academic Building (G+1, 72m×60m, 8,640 sq m)	₹ 14.00
2	Boys' Hostel ((50 Rooms / 200 Beds Capacity, 8,000 sq m)	₹ 5.00
3	Student Amenities Center (2,500 sq m, multi-function)	₹ 4.00
4	11 kV Substation Building (400 sq m)	₹ 2.00
5	Smart Classrooms (50 classrooms with smart boards)	₹ 1.80
6	Campus Digital Infrastructure (WiFi 7 / Next-Gen, fiber optic)	₹ 1.50
7	LMS/ERP/E-Library (software and licenses)	₹ 1.80
8	Research Centers & Labs (AI/ML, IoT, Robotics)	₹ 2.00
9	Smart Campus (CCTV)	₹ 1.80
10	Multipurpose Auditorium (500-seat capacity)	₹ 3.00
11	Sports Complex (Khelo India + Olympic 2036 aligned)	₹ 3.60

12	Canteen Building (12 km from city, essential service)	₹ 0.80
13	Student Stationery Store (photocopies, printing)	₹ 0.80
14	Water Storage Infrastructure (ESR/GSR system)	₹ 0.80
15	In-Campus Maintenance Setup (civil & electrical unit)	₹ 1.00
16	Miscellaneous, Landscaping & Contingency	₹ 0.70
17	IC Engineering Lab & Infrastructure	₹ 1.10
18	EC Engineering Lab & Infrastructure	₹ 1.10
	Subtotal - INFRASTRUCTURE	₹ 46.80
19	Faculty Development & Training	₹ 2.00
20	Research Support & Grants Management	₹ 1.00
21	Skill Development Programs	₹ 1.50
22	Quality Assurance & Accreditation	₹ 0.50
	Subtotal - PROGRAMS & OPERATIONS	₹ 5.00
	GRAND TOTAL (10-Year IDP)	₹ 51.80

5.13.3 Source of funds (Govt./CSR/Fees/PPP)

Table 5.3 Source of Funds - Funding Composition with Amount (₹ Crore) and Percentage Allocation

Funding Source	Amount (₹ Crore)	Percentage
Government (State/Central Schemes, RUSA)	₹ 49.30	95.17%
Institutional Revenue (Fees, Consultancy, Services)	₹ 0.50	0.97%
PPP & Industry Funding (Research, Co-development)	₹ 0.50	0.97%
CSR & Philanthropic (Alumni, Donors, Endowment)	₹ 1.00	1.93%
Research Grants (AICTE, DST, SERB, SSIP)	₹ 0.50	0.97%
TOTAL	₹ 51.80	100%

5.13.4 Sustainability plan (IRG, CSR, Endowment Policy)

- Solar Power Generation: Effective use of existing solar rooftop for sustainable campus operations
- Alumni Endowment Fund: ₹1 Crore corpus by 2035
- Faculty Consultancy & Testing Services (Revenue Growth Model):
 - Testing/Consultancy Revenue: → ₹5 Lakh (2027-28) → ₹50 Lakh in Ten years

- BIS-accredited testing laboratories generating repeat client revenue
- Institutional Revenue Growth: Professional courses, skill development programs, facility rentals, parking and other services
- Phased Implementation Model: Completed infrastructure phases (hostel, academic building) generate revenue through services enabling self-funded subsequent phases

5.13.5 Year-wise and component-wise allocation

Table 5.4 Year-wise Budget Allocation - Annual Distribution with Key Initiatives and Implementation Focus

Academic Year	Budget (₹ Cr)	Key Initiatives	Infrastructure Focus	Programs/Operations
2026-27	₹ 3.00	Digital Infrastructure Launch, ERP, WiFi 7	Substation, Network cabling	LMS implementation, FDP planning
2027-28	₹ 9.00	Academic Building start, Labs	Building foundation & structure	Lab modernization, includes IC lab, research CoEs planning
2028-29	₹ 8.5	Building continuation, Hostels Phase 1	Hostel construction, academic building ongoing	Smart classrooms install, research initiation
2029-30	₹ 6.00	Building completion, Auditorium Phase 1	Hostel completion, auditorium structure	CoEs operational, research programs
2030-31	₹ 5.30	Hostel completion, Canteen, Sports	Hostel finishing, canteen building, sports ground	Skill programs, alumni engagement
2031-32	₹ 5.50	Campus amenities, Guest House	Guest house, landscaping, parking	Consultancy program expansion
2032-33	₹ 4.50	Sports Complex completion, Final labs	Sports facilities, final infrastructure	Research funding growth
2033-34	₹ 1.50	Maintenance, Contingency management	Maintenance, repairs, upgrades	Faculty development, innovation support
2034-35	₹ 1.50	Zero Carbon completion, Final improvements	Solar full capacity, green campus completion	Sustainability operations, alumni endowment
Sub-total	₹44.80	Infrastructure Cost		

2026-25	₹7.00	Programs & Operational Budget distributed across the 10 years (e.g., ₹0.70 Cr/year
TOTAL	51.80	10-YEAR INVESTMENT

5.14 Conclusion

ALIGNMENT WITH NATIONAL POLICY & INSTITUTIONAL VISION

This Institutional Development Plan (2026-2035) comprehensively aligns with the National Education Policy 2020's core objectives. The proposed multidisciplinary M.E. programs, revival of Electronics & Communication Engineering, and IC program unfreezing exemplify NEP's emphasis on flexible, outcome-based education. Integration of NSQF-aligned skill development, 20+ industry partnerships, and digital infrastructure (WiFi 7, LMS, ERP) reflect NEP's mandate for technology-enabled, employable graduates. The institute strategically addresses regional development needs of the Saurashtra region through specialized programs in Civil, Structural, and Geotechnical Engineering, while contributing to national priorities including Khelo India, Atmanirbhar Bharat, and sustainable development through zero-carbon campus initiatives and skill development programs.

INSTITUTIONAL VISION & TRANSFORMATION ROADMAP

Over the next decade (2026-2035), Shantilal Shah Engineering College will evolve from a traditional government engineering college into an academically independent institution with strong research excellence and industry partnerships, positioned as a premier engineering college brand in Gujarat. This transformation centers on three pillars:

- **Academic Excellence:** Independent program design, curriculum flexibility aligned with NEP, and outcome-based education through 5 M.E. programs, expanded UG intake, and 20+ sustained industry MoUs
- **Research Excellence:** External research funding dominance (₹100L+ annually from AICTE, DST, SERB, industry), 10+ startups incubated, 10 patents filed, and 3 Centers of Excellence operational

This Institutional Development Plan positions Shantilal Shah Engineering College on a transformative 10-year journey toward excellence and academic distinction. Through strategic investments in infrastructure (₹44.80 Crore), academic innovation, research development, industry partnerships, and student-centric services, the institute commits to becoming a beacon of

engineering education excellence in Gujarat and a model for government engineering colleges nationally. By 2035, SSEC will be recognized as an academically independent, research-driven institution defining its future through excellence, innovation, and unwavering commitment to producing engineers who are technically competent, socially responsible, and contributors to India's progress and sustainable development.

6 ANNEXURES

6.1 Organizational Structure

- Institute operates under the following governance and organizational hierarchy:
- APEX: Principal (Dr. G. P. Vadodaria)

ACADEMIC LEADERSHIP:

- Heads of Department (Applied Mechanics, Civil, EC, Electrical, General, IC, IT, Mechanical)
- IQAC Coordinator
- Research & Innovation Cell Lead

FACULTY STRUCTURE (By Department):

- Professors: 2 current (expanding to 5 by 2030 for NBA prerequisites)
- Associate Professors: 10 (distributed across departments)
- Assistant Professors: 69 (expanding to 120+ with new programs and intake)

SUPPORT STAFF REQUIREMENTS:

- Lab Assistants (Branch-qualified): 15+
- Workshop Instructor & Superintendent: 5 (Mechanical)
- Administrative Staff: Administrative Officer, Account Officer, Hostel Superintendent, Store Officer, Librarian
- Technical Staff: Network Administrator, Database Manager, IT Support, Electrician, Plumber, Masons

ADMINISTRATIVE CELLS:

- Gender Sensitization & Equal Opportunity Cell
- Counseling & Student Support Services
- IQAC (Internal Quality Assurance Cell)
- Alumni Coordination Cell
- Accreditation Readiness Committee

NOTE: Faculty recruitment and administrative appointments subject to State Government of Gujarat policies and AICTE norms

6.2 Policies

Faculty Recruitment Policy: Government-mandated recruitment process; AICTE norms compliance; Ph.D. preference for 80% faculty by 2035

Faculty Consultancy & Testing Policy: Updated Government Rules for consultancy work at market rates; Testing facility accreditation; Revenue sharing for institutional benefit

Research Support & Incentive Policy: Internal funding for research projects (₹10L/project); Conference travel support; Patent filing support; Collaboration incentives

Quality Assurance & IQAC Policy: Institutional accreditation by 2030; Accreditation for 2-3 UG programs by 2032; Annual quality audits; Continuous improvement mechanisms

Maintenance Policy: In-campus civil and electrical maintenance setup (independent from R&B department); Preventive maintenance schedule; Quick response for academic disruptions

Anti-Harassment & Gender Sensitization Policy: Zero-tolerance approach; Confidential grievance mechanism; Monthly sensitization programs; Women's safety committee

Alumni Engagement Policy: Alumni portal and database; ₹1 Cr endowment fund establishment by 2035; Alumni scholarships and awards; Mentorship program (500+ pairs by 2030); Annual alumni gatherings

Sustainability & Green Campus Policy: Existing 100 kW solar rooftop maintenance; Rainwater harvesting; Borewell recharge system; Wastewater recycling;

Disclaimer:

All data has been verified against official institutional records, AICTE approval documents and information published on www.ssgec.ac.in. This IDP acknowledges that certain aspects including faculty recruitment, policy implementation and major infrastructure projects are subject to State Government of Gujarat approval and timelines. The institutional objectives remain committed to NEP 2020 principles and maintaining the highest standards of academic excellence, inclusivity and sustainability. Implementation schedules and budgets are indicative and may be adjusted based on government approvals, resource availability and institutional needs.

Prepared by: HoDs and Section Head Committee, Shantilal Shah Engineering College, Bhavnagar.

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