Department of Information Technology
Dr. Babasaheb Ambedkar Technological University

PERSPECTIVE PLAN (2020-2025)

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- **Department's Vision Statement**

  To achieve excellence in teaching, learning and research to develop quality engineers to meet the current trends in the emerging world of Information Technology.

- **Department's Mission Statement**

  Department constantly aims at providing quality technical education and works in pace with the modern scientific and technological development to meet the need of industry, business, the service sector and the society at large.

- **Core Values of the Department:**
  1. Openness: We are open to all, embracing diversity and respecting the perspectives and contributions of students, faculty, staff, industry, and society.
  2. Commitment: The faculty, students, and staff are deeply committed to the department's mission of providing quality technical education and striving to become a 'Center of Excellence' in Engineering Education.
  3. Integrity: We pledge to uphold honesty and fairness in all our interactions, respecting each other's interests and working collaboratively toward the common goal of achieving excellence.
  4. Innovation: We are dedicated to fostering innovation, promoting academic rigor, and collaborating to find solutions to local challenges with global significance.
  5. Societal Relevance: Our commitment to excellence drives us to apply creative solutions to address the ever-evolving technology landscape. We remain responsive to the needs of colleagues, students, research sponsors, industries, and visitors, offering timely and sensitive assistance.

- **FOCUS AS UNIVERSITY DEPARTMENT**

Academic Activities

1. **Curriculum Development:**
   - Orientation programs for Teachers
   - Development of dynamic curriculum with industry input
   - Professional Skills Development in students, staff, and Faculty
   - Choice/Flexibility through elective subjects
   - Participation of Industry Professionals in teaching and advisory Boards
   - Student-centered learning strategies
   - Project and research-based Teaching-Learning Processes
   - New pedagogy methodology
   - Motivating teachers for research
2. **Academic Monitoring:**
   - Faculty development
   - Curriculum Implementation and Assessment Norms
   - Continuous assessment
   - Result Analysis
   - Development and Use of new learning resources
   - Students' attendance
   - Library facilities and e-Resources
   - Laboratory standards and Manuals
   - Closed Loop system i.e., corrective measures through feedback mechanism.
   - Well-trained engineering Teachers
   - Mandatory NBA accreditation
   - Academic audit
3. **Academic Resources:**
   - Standardize Laboratory Practices
   - Well-arranged lab manuals
   - Creating learning space
   - Scientifically Customized Learning Resources
   - Transparent documents between the teachers and students
   - Continuous updates of the manuals and lecture notes
   - Compulsory industrial visits/Training
   - Software for subject domain learning
   - Mini projects for integrating skills.
   - Interactive expert lectures
   - Free educational resources

4. **E-Learning:**
   - Establishing Virtual learning centers
   - Relay/Video streaming of lectures from Digital media studios
   - Involvement of other Departments in the network for digital learnings.
   - Online certificate courses
   - Career counseling sessions.
   - Online Remedial examination
   - MoU with IITs and other Institutes for training in software
   - Spoken Tutorials
   - Online freeware
   - e-Depository of Lectures, PPT files, educational videos
   - On-line e-courses for learning for audit courses.

5. **Language Laboratory:**
   - Development of Communication skills,
   - Development of Technical Writing skills
   - Development of Foreign Language skills in students and Faculty
   - Orientation Training for Teachers for communication with students

6. **Online Remedial -Examination:**
   - Online examination
   - Instant result declaration.
   - Examination infrastructure for physically challenged.
   - Open office choice available.
   - Practical questions.

7. **Other Projects:**
   - Conduct of Online Digital Evaluation
   - Conducting Result Processing
   - Common Examination and Tests.
   - Search Conferences, Job Analysis, Market Survey
   - Key performance indicators

8. **Question Banks:**
   - Question Banks for important subjects
   - Balanced and errorless Question Papers.
   - Audit of question papers
   - Numerical solutions and answer keys for question paper on completion of examination
   - Question Paper profiling

. **Faculty Development and Academic Expertise**

1. **Orientation and Training:**
   - Orientation trainings

- Subject/Content updating training
- Pedagogy - Teaching and Learning processes
- Industrial Training
- Management skills (Time management, Project Management)
- Hands-on-skills trainings
- Financial management training
- Intellectual Property Management
- Human Resources and Interpersonal Communications training
- Life Skills, communication skills & Professional Skills
- Research Methodology

2. **Industrial Training for Teachers:**

- Industry Education Partnership Cell
- Collaboration with Industrial Organizations
- Deputation for industrial training
- Keeping up with the latest state-of-the-art technology developments
- Exposure to Industrial/Corporate Practices
- Learning the latest shop floor practices and Human Resource Management
- Building confidence and self-esteem
- Fostering innovation and research skills

3. **Academic Expertise:**

- Design and Development of Need-based Curricula.
- Design and Development of Lab Manuals and other virtual resources.
- Academic Audit of Technical Institutions.
- Faculty & Student development program.
- Conduct of on-line Examinations
- Result Processing and analysis
- Joint Certification Programs with industry and other departments.
- Consultancy Services
- A strong focus on the development of skills and competencies for solving real-life problems

Staff Development

- Industrial/Corporate Practices Exposure
- Hands-on Skills Trainings
- Deputation for Industrial Training
- Confidence and Self-Esteem Building
- Human Resources and Interpersonal Communications Training
- Qualification Improvement

Student-Centric Activities

1. **Talent Search:**
   - Promoting innovation, talent, and creativity programs through project competition.
   - Encouraging with cash prizes for winners.
   - Finishing Schools - Focusing on life skills, communication skills, and professional skills.
2. **State/National Level Student Technical Quiz Competitions:**
   - Encouraging learning peripheral and interdisciplinary knowledge.
   - Developing a broader vision for opportunities.
   - Promoting knowledge sharing.
   - Building confidence and self-esteem.
   - Grooming students to meet industry's expectations of professional competence.
   - Offering certification and cash prizes for winning teams and internships.
3. **State/National Level Student Technical Paper Competitions:**
   - Developing self-study skills.
   - Enhancing presentation skills.
   - Improving information search skills.
   - Building research abilities.
   - Promoting knowledge sharing skills.
   - Encouraging defense skills.
4. **Career Fair:**
   - Expanding technical and vocational education outreach to rural areas.
   - Disseminating information to students about career opportunities.
   - Conducting aptitude testing.
   - Providing student counseling.
   - Offering information on industrial training.
   - Organizing motivating lectures and theme talks.
5. **Scholarships:**
   - Providing scholarships to needy and meritorious students.
   - Encouraging social responsibility among scholars.
6. **Training and Placement:**
   - Creating a platform for placement through campus interviews and pool campus drives.
   - Ensuring equal opportunities for students and industries in urban as well as rural areas.
   - Offering finishing schools, counseling, and remedial training.
7. **Internship for Students:**
   - Implementing in-plant training/internships of one month each after the 4th and 6th semesters for all engineering students.
   - Facilitating six-month apprenticeships in industry after graduation.

Reforms in Administration

1. **e-Governance:**
   - Implementing cashless transactions within the department.
   - Establishing e-correspondence with other departments, affiliated colleges and institutes.
   - Ensuring quick and confirmed communication within the department.
   - Information dissemination through the department's website, including circulars, academic calendar, curricula, exam timetable, exam results, office orders, hall tickets, etc.
   - Enabling online submission of registration, marks-sheets, and declaration of results.
   - Providing online information dissemination.
   - Making faculty, staff, and student data available online.
   - Implementing an online registration system for courses.
   - Enabling online verification of information.
   - Implementing an online feedback mechanism.
   - Introducing an online attendance system and e-Notice board within the department.

Center of Excellence

- To meet the current needs of industry and Society
- Foster Industry-Department Partnership in Innovation
- Bridge technology gaps between industry and Department
- Enhance employability and entrepreneurship
- Provide hands-on practical experience with recent industry technologies
- Promote faculty development and enrichment
- Drive project and research programs
- Establish Continuing Education Programs (CEP)
- Generate revenue through collaborative initiatives
- Facilitate information processing and research planning
- Foster technology development and transfer

Promotion of Innovation

- Promote and boost the ability of faculty & students towards innovation
- Encourage innovation for product, process, or system
- Support IP management and processing fees for patents
- Provide technology transfer support
- Create a Networking Resource Centre

Skill Development Centers

- Skilling rural unemployed youth and providing employment.

- Fostering entrepreneurship.
- Promoting the development of science and technology skills.
- Supporting startups related to traditional knowledge.

- **Research & Development**
  - The department aims to harness the potential of enthusiastic students for the development of both basic and applied research.
  - The results of these research efforts should lead to the creation of practical and cost-effective technologies capable of addressing societal issues within the state and benefiting local industries.
  - Research projects will not only align with current industry trends but also anticipate and address future national needs.
  - Emulating the global practice, the department will actively engage in the construction of sophisticated instruments. This initiative aims to reduce dependence on imports, aligning with the 'Make in India' principle.
  - The department will closely monitor and evaluate research output on an annual basis.
  - Department will also establish specific research facilities available to faculty at nominal costs to cover operational and maintenance expenses.
  - Encouraging collaboration with other universities within the state and organizations across the country to advance knowledge and research.
  - Undergraduates will have opportunities for hands-on "research experience" in research labs, fostering creativity and innovation.
  - Young engineers and researchers will be encouraged to work on mission-oriented projects, gradually building complex systems over time.
  - The department will closely monitor trends in various fields of science and technology to identify problems and emerging areas for development, sharing these opportunities on its website for student engagement.
  - Initiatives like seminars and competitions will be organized to identify and nurture student talent.

- **Department-Industry Relations**
  - The department recognizes the critical role played by industry relations in shaping the employability of graduating engineers.
  - The Head of the department will serve as a vital link between academia and industry.
  - In collaboration with the Dean of Research and Development (R&D), the HoD will conduct surveys of local industries to identify their needs and requirements.
  - Regular meetings with local industry chambers and key industry leaders will be

held to foster cooperation and encourage industries to provide industrial training opportunities.

- o Industrial training won't be limited to students only after the VI Semester examination; it will also be extended to faculty members seeking industrial experience.
- o The department will emphasize the concept of a reciprocal faculty-industry relationship, where faculty expertise can be marketed to help industry, particularly in the knowledge-based sector.
- o This collaboration should be based on a give-and-take model, promoting mutual benefit and not just one-sided advantage.
- o Students are highly enthusiastic and possess innovative thinking, making them valuable assets for industries. Students are often willing to tackle challenges, provided they can apply their knowledge constructively.
- o The HoD's responsibilities will include establishing and nurturing relationships with industries and identifying real-life projects for final-year students to solve as part of their coursework.
- o A continuous dialogue with industry personnel will be maintained to ensure productive collaboration.
- o The HoD will also apprise industries of the research and technology developments at the department.
- o Industry-specific problems will be posted on the department's website for solutions, and teams will compete to provide viable solutions within stipulated timeframes.
- o The HoD will actively promote and market the research conducted by the department in relevant industrial forums.
- o Technology developed by the department will be showcased in exhibitions at regular intervals, attracting potential users for commercialization opportunities.
- o Inventors will be encouraged to become entrepreneurs and start their enterprises rather than seeking traditional employment.

- **Finishing School Program**
  - o Many engineering graduates, including those from rural backgrounds, encounter challenges in effective communication and applying their technical knowledge in real-world scenarios.
  - o To address these issues, the department will establish a Finishing School Program.
  - o This program will offer remedial courses and training at the department's center, focusing on the following key areas:
    - ✓ Communication Skills: Providing training to enhance communication abilities, particularly for graduates who face difficulties in interacting with the external world.
    - ✓ Interpersonal Communication: Developing interpersonal skills to improve

professional relationships and teamwork.
- ✓ Financial Management: Offering courses to impart financial management knowledge and skills.
- ✓ Short-Term Subject Domain Courses: Providing short-term courses to refresh and reinforce technical knowledge.
- o The Finishing School Program aims to bridge the gap between academic education and practical application, ensuring that graduates are well-prepared for the challenges of the professional world.

- **e-Resources and Digital Media Lab**
  - o The department will establish a state-of-the-art digital media lab with a specific focus on creating educational content in the format similar to TEDx talks.
  - o Each lecture will be condensed into a 15-minute session, delivering the latest developments and insights in various fields of study.
  - o These recorded lectures will be made available on a subscription basis to students.
  - o Revenue generated from subscriptions will be shared with the resource persons, encouraging experts to contribute to the educational content.
  - o The digital media lab will also have the capability to stream these lectures over the internet.
  - o This depository will serve as a valuable resource for the student community, providing access to a wealth of knowledge and educational material.

- **Accreditation - NAAC/ NBA/ NIRF**

  - o The department recognizes the importance of adhering to national-level regulatory compliance for academic activities, including accreditation by organizations such as NAAC, AICTE, NBA, and NIRF.
  - o The goal is to ensure that undergraduate (UG) and postgraduate (PG) degree programs offered by the department receive accreditation from the NBA, while the University accredited by NAAC.
  - o The department hires ad-hoc faculty annually, following established procedures and qualifications. Faculty members with MTech or PhD qualifications and sufficient teaching experience should be allowed to teach and guide MTech students.
  - o The department will implement continuous monitoring and evaluation of NBA and NAAC parameters through an online mechanism. A database will be created to track these parameters, and semester-wise evaluations will be conducted to identify areas for improvement.

- **Student's Data Analysis**

- o The department will use the University Information Management System (UMIS).
- o Student records, both past academic history and current achievements, will be logged into UMIS and accessible based on account privileges.
- o Performance evaluations will be conducted, allowing for trend analysis and comparisons.
- o The analysis will include tracking the progress of women candidates compared to men and socially disadvantaged groups compared to other groups.
- o This data will inform syllabus adjustments and the provision of additional support for these groups.
- o Student data will be mapped against the demand for graduates. The goal is to ensure that graduates are adequately trained to meet both local industry needs and global skill demands.

- **Teaching-Learning Processes**

  - o The department's primary goal in higher education is to prepare students for real-world challenges.
  - o Effective content delivery is the initial step in the teaching process, and equally vital is engaging students in the learning process.
  - o Department will implement a biometric e-attendance system, automatically transmitting student attendance data to the Department to ensure timely content delivery.
  - o Flexibility is incorporated into content delivery and learning methods. Teachers have the authority to allocate up to 20% of the course credit through continuous assessment.
  - o Continuous assessment methods can vary, including short quizzes, small projects, online tests, or presentations, but must not become a replication of traditional examinations.
  - o It is mandatory for teachers to upload their lecture notes and continuous assessment methods to the Department portal. This information will be regularly accessed by the Department and will be part of the annual academic audit process.
  - o Teachers hold the primary responsibility for continuous assessment and midterm examinations, accounting for an additional 20% of the course credits. Midterm exams will be scheduled by the Department, and the assessed papers must be returned to the candidates.

- **e-Learning Activities**

  - o Implementation of Moodle as the Learning Management System (LMS)-The department will deploy a Learning Management System (LMS) called Moodle, which is an open-source platform. Moodle will be capable of managing course-specific information such as student registration, quiz and exam results, online examination facilitation, assignment distribution, online assignment submission, and storage of course materials.
  - o Digital Content Repository: The department will establish a digital content repository with the objective of archiving M. Tech. and PhD dissertations, as well as other scholarly

articles published by members. This repository will be designed to make these resources accessible to the public.

o Enhancing Student-Teacher Interaction with Piazza: To foster increased interaction between students and teachers, the department will encourage the use of Piazza, a social networking platform. Faculty members will be urged to create web-based course pages on Piazza for all the courses they teach during each semester.

o Modernization of Classroom Facilities for e-Content Delivery: The department will upgrade all classrooms in the Department systematically to support e-content delivery. These upgraded classrooms will be equipped with video-recording and web streaming capabilities. Lectures conducted at the Department will be live-streamed on the internet. Additionally, these lectures will be stored in an e-depository for offline access.

- **Practices, Projects & Experiments**

  o Enhancing Practical Training: The department aims to revamp practical training methods to better prepare students for real-world applications. Laboratories will undergo transformation to focus on experiment-based learning. Cost-effective infrastructure will be utilized to demonstrate scientific principles, sparking student interest in projects.

  o Digitization of Practical Notebooks: Department will maintain records of students' practical notebooks for one year before digitizing the data and securely disposing of physical copies.

  o Interactive Practical Learning: Practical sessions will be designed to create enjoyable and challenging learning experiences. Departments will actively develop new experiments and share their experiences with others. Faculty members will have the flexibility to create innovative experiments and utilize them as case studies in classes. Alignment between theoretical classroom content and practical experiments in the laboratory will be ensured.

  o Repository of Newly Designed Experiments: A repository of newly designed experiments will be established on the Department webpages and the server. Students will have access to these resources before attending classes or laboratory sessions.

  o Promoting Open-Ended Experiments: Each laboratory will include at least one open-ended experiment. Students will be encouraged to work on these setups and design new experiments using the same hardware or by incorporating additional inputs at a reasonable cost. Emphasis will be placed on recognizing the most innovative approaches rather than merely conducting experiments routinely.

- **Motivating Students - Short-Term Projects**

  o Promoting Practical Application of Knowledge: Engineering education will emphasize practical application alongside theoretical learning. Starting from the second year, students will be encouraged to engage in small projects, completing at least one project

each semester. Projects can be undertaken individually or in groups, with clear scope definitions and ongoing progress tracking. A peer evaluation matrix will be employed in group projects to assess each participant's contribution and assign relative credit accordingly.

o Project Scope and Flexibility: Projects can be related to the subjects taught in theory or explore entirely new areas. Students will be encouraged to use simulation techniques and computer software, particularly open-source applications, to enhance their project work. Faculty supervision will be provided to guide students in unfamiliar domains. Activities like molecular simulation, and Scilab programming can serve as additional learning opportunities, which can later be integrated with core subjects.

o Interdisciplinary Projects and Skill Development: Longer-term projects may be defined, but the focus will be on achieving meaningful results at frequent intervals. Collaboration across departments and disciplines will be promoted to develop interdisciplinary projects.

o Cross-Departmental Courses: The department will introduce a minimum of 5% cross-departmental, functional, or courses to meet industry demands and enhance students' skill sets.

- **Final Year Projects**

o Shift Towards Practical Applications: Final year projects will transition from hypothetical concepts to mini-research projects with practical applications. Strong collaboration with industry is essential to gain industry insights and perspectives on project assignments. Students will be encouraged to engage with industry professionals to define project problems effectively, ensuring their practical utility.

o Addressing Societal and Industrial Challenges: The Department will actively engage with the surrounding society and industry. Faculty and students will conduct surveys to gather data on local industries, nearby towns, villages, and the unmet needs of the community. Identified societal and industrial challenges will serve as opportunities for academic projects, aligning academia's efforts with the needs of society. Innovative and affordable solutions will be promoted through competitive selection processes, with comprehensive support provided in terms of materials, funds, and human resources.

- **Student Industry Training**

o Mandatory Six-Week Training After Sixth Semester: All students are required to undergo a six-week industry training program following their sixth-semester examinations. During this training period, students should actively engage in industrially relevant projects and select one for further development. Projects developed during the industry training can be continued and refined in the following semester. Promoting project pitches to the same companies where the students completed their training is encouraged to increase industry

acceptance.

o Optional Semester-Long Industry Training in the Eighth Semester: Department can offer a complete semester-long industry training program during the eighth semester. Selection for this training should be done through a competitive process to ensure the best candidates are chosen.

o Monthly Progress Monitoring and Assessment: Faculty members will be responsible for monitoring the progress of students during their industry training. Monthly interactions between students and faculty members will facilitate ongoing assessment. Final grading should involve input from industry experts, particularly those from the same company where the student completed their training.

o Leveraging External Training Opportunities: Partnerships can be established with organizations like BSNL etc, which offer chargeable industry training programs. These organizations can also be engaged to provide faculty training opportunities to enhance the educational experience.

- **Faculty Pedagogy and Training Program**

o Regular and Ad-Hoc Faculty Training: Faculty members, both regular and ad-hoc, will be strongly encouraged to participate in training programs conducted under the GIAN (Global Initiative of Academic Networks) initiative initiated by MHRD. New faculty members, upon appointment, are required to complete a total of four to six weeks of training in pedagogy within the first year of their appointment. The focus of the training will encompass innovative teaching and learning methodologies, effective evaluation techniques, continuous assessment strategies, time management, emotional intelligence, project management, and financial management. The training may be conducted in multiple phases to facilitate practical application, and mentoring support will be provided by the department.

o Pedagogical Training for Ad-Hoc Faculty: Given the annual recruitment of a substantial number of ad-hoc teaching staff, an in-house pedagogical training program is proposed. This program will be designed to provide ad-hoc faculty members, often recent graduates, with essential pedagogical skills. The training will be conducted by experienced internal senior staff members and may include guest faculty members. Workshops will be held annually for one week, typically in the first week of July or January, to equip ad-hoc faculty with effective teaching strategies and methodologies.

- **Faculty Training in Industry Program**

Faculty members are encouraged to participate in industry or corporate sector training programs at regular intervals. As part of this initiative, faculty members are required to spend a minimum of six weeks in the industry or corporate sector once every three years.

These experiences will enable faculty members to gain practical insights, industry-specific knowledge, and firsthand exposure to new developments. The industry is encouraged to offer opportunities for faculty members to serve as interns, allowing them to spend up to eight weeks at the workplace. During this period, faculty members may accompany students undertaking internships in the same industry and collaborate on solving industry-specific challenges. This collaboration leverages the expertise of faculty members to address complex problems that the industry may face. Fresh perspectives and innovative solutions can result from the involvement of faculty with the requisite expertise.

- **Industry Relations and Engagement Program**

  o Appointment of Adjunct Faculty: In accordance with AICTE and UGC regulations, the department will utilize the provision to appoint industry professionals as Adjunct Faculty.
  o Joint Courses with Industry Experts: Department will collaborate with an adjunct faculty member from the industry to offer specialized courses. The industry expert will deliver 20 hours of lectures, usually scheduled over a maximum of five visits to the campus. The remaining 16 hours of lectures will be conducted by the department's host faculty members. Host faculty members will be responsible for coordinating travel arrangements, providing local hospitality, and conducting examinations.
  o Facilitation of Industry Interaction: Department will actively survey local industries, as well as across the state and the country, and make recommendations for curriculum adjustments and the introduction of new courses. Industry-specific challenges and problems can be brought to Department for collaborative problem-solving, fostering meaningful partnerships between innovators and industry stakeholders.
  o Resource Sharing with Small and Medium Scale Industries: Recognizing that local small and medium-sized industries may lack comprehensive laboratories, partnerships will be established to leverage the resources available at the Department.
  o Industry Engagement Initiatives: Regular meetings with industry representatives will provide a platform for sharing their insights and perspectives on the Department's activities. Research outcomes from department can be shared with industry partners under confidentiality agreements and explored for potential technology development and transfer. Ongoing lectures, seminars, and information exchange sessions will be organized at the department to disseminate knowledge and promote engagement with industry stakeholders. Annual exhibitions will showcase products and processes developed by the department, making them accessible to industry professionals. These exhibitions aim to generate industry interest in adopting the research outcomes.

- **Soft Skills and Training Program**

- Communication Skills Enhancement: The department recognizes the importance of improving students' communication and interpersonal skills. Department will provide formal training programs or engage in informal activities to help students refine their communication abilities. The department encourages external expert-led activities, which may entail additional costs. These costs will be shared among the students as they are the primary beneficiaries. By the time students reach their final year, they should have achieved fluency in at least one foreign language. While English is the most common choice, students should also have the option to learn languages such as German, French etc.
- Soft Skills Development: The department places emphasis on teaching soft skills essential for enhancing students' employability. Students will be trained in critical areas such as teamwork, time management, financial management, and emotional balance.
- Areas of Expertise: Students will be encouraged to develop expertise in at least one specific area relevant to their field. The department is planning to integrate expertise in areas like Machine learning and Cyber Security. Expertise in different areas will be developed as needed. Efforts will be made to integrate these developments with core courses to minimize the need for additional interventions and enhance the overall learning experience. The aim of these initiatives is to equip students with not only technical knowledge but also the soft skills and expertise required to excel in their chosen fields and improve their employability prospects.

- **Innovative Learning Approaches**

  - Supervised Learning: The department is introducing a novel approach called supervised learning in selected courses. In supervised learning, a course faculty member acts as a supervisor. Students will learn the course content through problem-solving, field visits, and project work. The course faculty will be responsible for conducting examinations and assigning projects and problems. The classroom environment will encourage cooperative learning. Students will have access to internet-based content and can collaborate to understand complex concepts. If they encounter difficulties, they can seek assistance from other students or the supervising teacher.
  - Flipped Classroom Learning: Some courses will be conducted in a flipped classroom mode. Students will be required to study lecture materials at home, and classroom time will be utilized for more interactive activities such as discussions, problem-solving, and practical applications of theory. Implementing this approach may require substantial support and guidance from experts.
  - Media Classrooms: Classrooms will be equipped as media labs to facilitate computer-based experiments and enhance the learning experience. The Department's TV room can be transformed into an open learning space where courses from platforms like Coursera,

IEEE, MIT Open Courseware, NPTEL, or Khan Academy can be broadcasted. Students who have enrolled in these courses can attend these lectures. Lectures by Nobel Laureates and other visiting experts can also be projected using this setup. Credits can be assigned to online courses, provided that exams are conducted under supervised conditions. These online courses can be offered as electives or audit courses.

- o Technology-Oriented Courses During Vacations: Technology-oriented courses related to ICT, industry safety and regulations, entrepreneurship, and automation will be offered as vacation courses to interested students. A dedicated cell will be established to organize these courses and ensure their effective deliver.

- o Mandatory MOOC Completion: Successful completion of at least one Massive Open Online Course (MOOC) will be made mandatory for students to earn B. Tech and M. Tech degrees. Students will be required to enroll in free courses available on platforms like Coursera, EdX, NPTEL, or ACADS.

These innovative learning approaches aim to provide students with a more engaging and diverse educational experience, fostering self-directed learning and exposure to a wider range of educational resources.

- **Faculty Feedback**

The department recognizes the importance of gathering feedback from faculty members across all disciplines. Faculty members, including those with extensive experience, may face challenges adapting to newer means of communication and digital content delivery. Efforts will be made to balance the needs of experienced faculty with the digital system's requirements.

- **Alumni and Current Student Feedback**

The department acknowledges the significant role of alumni in contributing to the Department's growth. Feedback from both alumni and current students is considered valuable for continuous improvement. The department will establish mechanisms to collect, analyze, and act upon feedback provided by these key stakeholders.

- **Program Evaluation and Stakeholder Feedback**

- o Comprehensive Program Evaluation: The department is committed to continuously assessing and improving its programs to meet the evolving needs of stakeholders. To achieve this, a comprehensive program evaluation will be conducted to determine the current status and perceptions of Department.

- o Stakeholder Involvement: Stakeholders include students, faculty, staff, alumni, industry partners, and society at large. Their valuable input will be sought to gauge their perspectives on various aspects of the programs.

- o Online Survey: An online survey will be launched to collect feedback from stakeholders.

The survey will cover a range of topics, including program effectiveness, curriculum relevance, faculty quality, infrastructure, and overall satisfaction.

o Analysis for Future Enhancements: The feedback collected through the survey will be meticulously analyzed to identify areas of improvement. The results will guide the development of future course modules and program enhancements.

Through a systematic program evaluation process that actively involves all stakeholders and utilizes online surveys, the department aims to ensure that department remains aligned with the expectations and requirements of its students, faculty, alumni, industry partners, and society as a whole. This commitment to continuous improvement will contribute to the department's growth and effectiveness.

- **Staff Development Initiatives**

  o The department recognizes the critical role of non-teaching staff in supporting the implementation of new pedagogical methods, digital evaluation processes, and e-governance initiatives. To equip our staff with the necessary skills, various training programs will be initiated.

  o Skill Development: Regular skill development programs will be conducted for staff at all levels. These programs will focus on enhancing their skills to effectively contribute to the department's mission.

  o Communication Skills: Communication skills are vital in maintaining efficient operations and interactions within the department. Training sessions will be organized to improve communication skills among staff members.

  o Specialized programs will be designed for support staff. These programs will cover a range of topics to enhance their roles and responsibilities.

  o Program Topics for Support Staff
    ✓ People Management: Providing tools and techniques for effective personnel management.
    ✓ Infrastructure/Resource Management: Ensuring efficient use of departmental resources.
    ✓ Time Management/Stress Management: Equipping staff with time management skills and stress reduction techniques.
    ✓ Quality and Audit of Activities: Understanding and implementing quality assurance and audit processes.
    ✓ Ownership and Relationship Building: Fostering a sense of ownership among staff and building positive relationships.
    ✓ Self-Improvement and Accountability Encouraging self-improvement and personal accountability.
    ✓ Skill Improvement and Qualification Enhancement: Promoting continuous skill development and qualification improvement.

The department is committed to nurturing a skilled and proficient staff that can effectively support the implementation of new initiatives and contribute to the overall success of Department. Through targeted training programs and development opportunities, staff members will be empowered to excel in their roles and responsibilities.

- **Academic Audit Framework for the Department**

The department will establish a robust Academic Audit system for continuous improvement. Audit results will be made accessible on the department's website. The purpose of the audit is to identify areas for improvement and plan development programs. Previously, Advisory Committee members audited the department.

  o Academic Audit Process: The Academic Audit is a peer review process that includes self-study and an audit visit by a peer group from outside the department. It emphasizes self-reflection and self-improvement rather than just compliance with standards. The audit focuses on evaluating the quality of 'Teaching-Learning processes.'
  o Audit Framework: The academic audit framework encompasses activities and quality assurance processes expected. Each academic activity should be assessed not only in terms of whether it is undertaken but also how effectively it is carried out and the evidence supporting self-evaluation. The department must identify areas for improvement and develop strategies based on self-assessment.
  o Audit Phases: The audit begins with self-review, where the department reports its progress towards achieving audit goals and objectives. The audit panel verifies self-assessment through documentary evidence and stakeholder interviews during a site visit. Academic audit examines how faculty organize their work, make educational decisions, and provide quality education to benefit both the discipline and students.
  o The final audit report will be made publicly available on the department's website. The report acknowledges good practices that can be emulated and provides recommendations for continuous improvement.
  o Progress Report: -In the following year, a progress report on the implementation of previous audit recommendations will form part of the self-review process. All activities and processes discussed apply to both postgraduate and undergraduate programs, assuming they are relevant to all students.

These guidelines establish an academic audit framework for the department, promoting self-improvement, transparency, and continuous enhancement of teaching and learning quality.

- **Training Need Analysis (TNA) Procedure for the Department**

  o The department will conduct Training Need Analysis (TNA) for teachers and supporting staff members. TNA will identify the specific training requirements of each teacher at the

beginning of each academic year. Based on TNA results, the department will develop a comprehensive 'Training Calendar' for the academic year.

- o The TNA process will involve an assessment of the training needs of teachers and support staff. It will consider factors such as advancements in pedagogy, technology, and relevant subject matter. TNA results will be compiled for each individual and will serve as the basis for tailored training plans.
- o Department will create a 'Training Calendar' at the beginning of each academic year.
- o Training programs will be designed to address the specific needs identified through TNA. Programs will focus on enhancing teaching skills, pedagogical techniques, technology utlization, and any other relevant areas. The duration of these programs will be determined by their content and objectives.

These guidelines establish a systematic TNA process within the department to identify training needs, develop targeted training programs, and ensure continuous professional development for teachers and supporting staff members in the department.

- **ICT Infrastructure Development Plan for the Department**

  - o Digitizing Activities:
  - Objective: To enhance transparency in administration by digitizing all Department activities.
  - Action Plan:
    - Implement an online application and document submission system.
    - Develop a biometric login system for day-to-day activities.
    - Provide an interface for applications, complaints, and discussions.
    - Procure necessary hardware and software.

  - o CCTV Installation
  - Objective: To ensure security and administrative monitoring.
  - Action Plan:
    - Finalize wiring layout and install cameras, DVRs, monitors, and storage devices.
    - Procure the required devices and equipment.

  - o Virtual Classrooms
  - Objective: To establish virtual classrooms for seminars, webinars, STTPs, workshops, and conferences.
  - Action Plan:
    - Create classrooms with PA systems, interactive displays, and internet connectivity.
    - Procure audio-video systems, boards, whiteboards, webcams, and broadcast devices.

- o E-Storage Creation
  - Objective: To provide access to NPTEL video lectures, faculty video lectures, notes, assignments, e-books, and other e-content.
  - Action Plan:
    - Procure servers, storage devices, and intranet facilities.

- o Recording and Editing Rooms
- Objective: To create e-course content by industry and academia experts.
- Action Plan:
  - Set up recording rooms with advanced audio-video processing tools/software.
  - Employ trained full-time operators.

- o Database Server
- Objective: To maintain student, staff, and faculty databases.
- Action Plan:
  - Procure servers and storage devices.

- o Website Development and Maintenance
  - Objective: To issue circulars, notices, rules, regulations, examination schedules, and results through a user-friendly website.
  - Action Plan:
    - Develop and manage the website, including chat interfaces for faculty and staff.

Planning, Evaluation and Monitoring

The following parameters shall be used to monitor and evaluate the progress of the Department using the status of 2015-16 as the base case.

Key Performance Parameters for Monitoring and Evaluation Framework	percentage
1. Curriculum	**20%**
1. Quality of the curriculum	
2. Regular curriculum revision in line to technological developments	
3. Focus on mix of theory, lab. work, case study	
4. Industry participation in curriculum design	
2 Teaching and Pedagogy	**20%**
1. Qualification and Competence of the Teaching Staff	
2. % of permanent teaching staff on roll	
3. Healthy teacher/student ratio	
4. Teaching methodology	
5. Use of modern learning aids and methodology	
6. Utilization of Feedback on teaching and pedagogy	
7. Attendance and Timely evaluation Processes	
4. Physical Infrastructure	**10%**
1. Adequacy of classrooms, laboratories and other facilities	
2. Adequacy of libraries and availability of digital content	
3. Hostels and residential facilities for faculty and staff	
4. ICT Infrastructure and E-learning resources	
5. Recreational facilities	
5. Learning Resources	**10%**
1. Library and Modern Learning resources	
2. Institute Publications and Case Studies	
3. E-Learning Modules developed	
4. Availability of e-courses and % therereof	
6. Organization, Governance and Management	**10%**
1. Quality of Governing body and leadership	
2. Appointment of faculty and staff as per AICTE and State Government norms	
3. Transparency and efficiency in functioning of the institute	
4. Regular Audit of Process, System and Finance	
5. Internal Revenue Generation and development expenditure	
6. Sustainability of operations and Financial Position	
7. Long term Vision and Mission	
8. Grievance Redressal System	
9. Students' Involvement	
10. Industry Linkages	**10%**
1. Industry sponsored projects for faculty	
2. Visiting/Adjunct faculty from Industry	

3.	Placement of students in industry	
4.	Number of Scholarship from Industry	
5.	Number of Joint projects with industry	
6.	Number of Industry Chairs in department	
7.	Industry Participation in Governance	
8.	Training of Industry personnel	
11. National & International Linkages		**5%**
1.	Faculty exchange program, if any	
2.	Student exchange program, if any	
3.	MoUs with reputed international institutions	
4.	Joint Research projects	
5.	Joint educational programs	
6.	Joint publications and patents	
7.	Joint development programs	
12. Research and Innovation		**10**
1.	Research facilities and promotion of research culture	
2.	Number of publications in SCI indexed journals by faculty	
3.	Number of patents filed, granted and commercialized	
4.	Number of Research Projects	
5.	Amount of Research funding and % utilization	
6.	Number of Innovation products, Patents and value addition	
7.	Number of Entrepreneurs and Start ups	
8.	Joint projects with industry and value of revenue	
13. Satisfaction Index (from Surveys)		**5%**
1.	Students	
2.	Staff	
3.	Faculty	
4.	Industry	
5.	Society	