

Marathwada Mitra Mandal's
COLLEGE OF ENGINEERING

Permanently Affiliated to SPPU\Accredited with "A++" Grade by NAAC\Recipient of 'Best college' award by SPPU\

Accredited by NBA (Electrical and Mechanical Engg)

A.Y. 2023-24

STRATEGIC PLAN

Preamble:

Strategic planning is the art of creating specific strategies, implementing them, and evaluating the results of executing the plan, in regard to the Institute's overall short-term and long-term goals or desires. It is a concept that focuses on integrating various departments within the institute to accomplish its strategic goals. The term strategic planning is essentially synonymous with strategic management.

The development and execution of strategic planning are typically viewed as consisting of being performed in three critical steps namely,

- Strategic formulation
- Strategic implementation
- Strategic execution

In order to formulate the strategic plan of Marathwada Mitra Mandal's College of Engineering, Pune, following points are considered:

I. Overview of Education, Technology and Regulatory Scenario

i. Technology Scenario:

Technology plays a very important role in helping everyone survive in this 21st century. Without it, one cannot imagine this world. As, it has grappled its way into our day-to-day lives, making its grasp tighter in every aspect. Ever since Covid-19 happened, technology has proved to be a boon for the educational sector. Educators realised the role of digitisation a while ago but this pandemic gave it a sudden thrust and boost.

Technology scenarios represent a holistic approach for managing innovation processes and technologies efficiently. Big Data, Machine Learning, and the Internet of Things (IoT) were the biggest educational technology trends of 2019. Future scenarios will address Distributed computing, Artificial intelligence, Virtual Reality and Quantum computing (DARQ).

ii. International Education Scenario:

Volatile, uncertain, complex and ambiguous characterize the engineering education scenario. Engineers form the backbone of any country's economy. Around 25% of the world's engineers are in India but it lags behind in research and innovation. At the global level, engineering education is experiencing a paradigm shift from teacher-centric to student-centric teaching-learning process, content-based education to outcome-based education, knowledge seeking to knowledge sharing classrooms, teachers to

facilitators, traditional engineering disciplines to interdisciplinary courses, chalk and board (lecture based) learning to technology driven learning and the list goes on. But in India, still conventional teaching – learning practices with little practical training is adopted in many institutions. Indian institutions still struggle to make a position in world ranking with few exceptions. A country which pioneered in engineering, medicine, arts and music etc. in the ancient era, suffers major setbacks in technical education.

Indian technical education can become more robust if we employ few directions:

- **Enhancing the teaching – learning process**

Adopting an innovative teaching-learning process is crucial in making the students interested in engineering education. Few of the important changes that may be brought in this aspect are:

- ❖ Revision of teaching – learning pedagogies by incorporating innovative teaching practices for enhancing the learning experience
- ❖ Learner-Centric teaching practices
- ❖ Emphasis on outcome-based education
- ❖ Partnerships between industry and institutions, institutions-institutions, institutions – professional bodies
- ❖ Creation of research culture
- ❖ Exposure to current industrial practice
- ❖ Provision to foster innovation and creativity etc.
- ❖ Collaboration with international universities
- ❖ Innovative skills by practical and project based

- **Up-skilling the faculty members**

Teachers are the pillars of any education system. Enhancing the quality of the teachers will have a direct and profound impact on the students' learning skills. Training and skill development of the faculty members should be taken as the first priority to enhance the quality of engineering education. Few measures that may prove beneficial are:

- ❖ Training of faculty members
- ❖ Inculcating research culture
- ❖ Online course certifications
- ❖ Faculty development programs by the industry on specialist courses
- ❖ Periodical refresher courses
- ❖ Enhancing communication skills and
- ❖ Motivation

- **Enhancing students' attitude and participation**

The ultimate beneficiaries of all the measures are the students. The changing mindset, information overload, lack of attitude and aptitude, social media distraction etc. should be addressed through appropriate measures such as, counseling, mentoring, innovative teaching pedagogies. Value based education is

also important for the students. This may be achieved by implementing the following measures:

- ❖ Innovative teaching-learning process
- ❖ Professional ethics education
- ❖ Integration of human and moral values to boost the attitude of the students
- ❖ 5-10-day orientation programme for the freshers by the senior students, Alumni and industry
- ❖ Emphasis on project-based learning, internships, collaborative learning.
- ❖ Introduction of specialist courses
- ❖ Awareness on changing job markets etc

○ **Upgrading the curriculum and facilities**

Policy makers, Universities, academic heads and management (in case of private institutions) are the four important pillars for bringing in the changes recommended above. Unless the changes are brought in terms of curriculum and syllabus to suit the current needs and the required infrastructure, attaining the goal of “Enhanced quality of Engineering Education” will only be a dream. The changes that are recommended in this aspect are:

- ❖ Introduction of scope for general skills development
- ❖ Scope for research and project-based learning
- ❖ Scope to foster innovation and creativity etc.
- ❖ Education on 21st century skills
- ❖ Revision and updation of syllabus and curriculum periodically to suit the global scenario
- ❖ Development of infrastructure
- ❖ Appointment of qualified faculty members

iii. **Regulatory Scenario:**

National Education Policy (NEP) 2020 is about reinventing the education system. The focus of curriculums now needs to be on the content, context & community. Proper restructuring of curriculums and imparting quality higher education are the only ways to attain global citizenship. At the same time, modernizing curriculum by integrating interdisciplinary areas with major focus on, self-learning, skill development, outcome-based assessment and multi-disciplinary approach towards research is the future.

NAAC and NBA are two major accreditors in India for higher education. For quality improvement in Higher Education Institutions (HEI), the Ministry of Human Resource Development, Government of India, has established NAAC under UGC and NBA under AICTE in 1994.

NBA accreditation plays a vital role in facilitating constant quality improvement in higher learning institutes. This accreditation recognizes the innovations and achievements of higher learning institutes. NBA helps higher educational institutes to know its strengths, weaknesses and opportunities. Various funding agencies have made it mandatory to have NBA and NAAC

accreditation. Moreover, NBA accreditation is a prerequisite for the technical institutions to seek autonomous status from University/UGC. In the future, there will be a super body called NAC (National Accreditation Council). NAC will primarily design the system of accreditation and create several accrediting bodies. NBA and NAAC may become two of the constituents of NAC and there may be many more.

II. Benchmarking and SWOC Analysis

Bench-marking:

- ❖ Name in the listing of top 5 colleges of SPPU.
- ❖ Attainment of Program Outcomes at level 3
- ❖ 100% admissions
- ❖ 100% result with first class
- ❖ 100% placement of interested & eligible students
- ❖ Minimum 1 university rank form each department per year
- ❖ Accreditation with 800+ score in NBA, 3.5+ in NAAC
- ❖ Faculty Qualification: 60% PhD faculty members in 3 years
- ❖ 100+ Patents in 3 years
- ❖ Per year minimum 50 publications in reputed journals
- ❖ 5 consultancy projects per year
- ❖ 1 international collaboration per year
- ❖ Per department 1 student achievement at national/ international level.
- ❖ Ranking in NIRF, Atal, Times etc.

Strengths:

- ❖ Supportive management
- ❖ Strong team of dynamic & well qualified faculty members
- ❖ Faculty retention ratio is good
- ❖ Faculty have good exposure towards interaction with the outside world: Reviewers, Session Chairs, Syllabus & Paper Setters, examiner etc.
- ❖ Strong Industry Connect
- ❖ Overseas placement at Japan
- ❖ FE Student enrolment is good in Comp., IT, AIDS & E&TC; DSE student enrolment is good in all branches
- ❖ Strong Alumni network
- ❖ Accredited by NAAC
- ❖ Mechanical & Electrical department accredited by NBA
- ❖ Higher studies of students in foreign universities
- ❖ Postgraduate and PhD Research Centre in Computer Engineering Department
- ❖ Active participation of students in co-curricular and extra-curricular activities
- ❖ Excellent facility for Invention, Innovation and Incubation through FMCIII
- ❖ Rigorous Academics with advanced ICT tools
- ❖ Use of OBE philosophy
- ❖ Success rate of students is good
- ❖ Adequate and well-maintained infrastructure for Curricular, Co-curricular and Extracurricular activities
- ❖ Recognized as 'GPU Education Centre' of NVIDIA, Nodal Center for Virtual Labs., Spoken tutorial, Remote center of IIT Bombay

- ❖ Active professional bodies, student associations, students Clubs like ACM, ACES, CSI, ISTE, GDSC, IEEE, ISHRAE, ASHRAE, ISACA, ITSA, CESA, MESA, EESA, BETA, IT tech club, GDSC, Zenith Astronomy etc.

Weaknesses:

- ❖ Less of funded research projects
- ❖ Less quality research publications
- ❖ Very less consultancy projects
- ❖ Less placements of hard branches
- ❖ Less Succession ratio
- ❖ Adjunct/Visiting Faculty
- ❖ Less community services
- ❖ International Collaborations
- ❖ Branding & Publicity

Opportunities:

- ❖ Collaboration with Industries, National/ International bodies
- ❖ Innovation and funded projects
- ❖ Regional recognition
- ❖ More number of FDPs /STTPS, National/International Level conferences
- ❖ NBA Accreditation of all departments
- ❖ NAAC Accreditation with A+
- ❖ Academic Autonomy
- ❖ Interdisciplinary projects
- ❖ Industry grade certification courses in latest technologies
- ❖ Strengthening interaction with Alumni to facilitate better connectivity with the industry
- ❖ Developing state of art laboratories in association with Industries
- ❖ More Patents and Copyrights
- ❖ Undertake significant industry consultancies
- ❖ 100% admissions with quality input
- ❖ Quality of research publications
- ❖ To engage in more community services
- ❖ 100 % Placements
- ❖ 100% student internships
- ❖ Faculty and student exchange program with foreign universities

Challenges:

- ❖ Global competition for admissions
- ❖ Cope up with changing technology
- ❖ Decline in interest of candidates in Engineering
- ❖ Inculcation of entrepreneurship skills in students
- ❖ Student attendance of final year
- ❖ Placement of students in core industries

III. Performance Indicators with Strategic Goals

| Sr. No. | Performance Indicator | Goal | |
|---|---|--|--|
| | | Short term | Long term |
| 1 | Admission | 100% of admissions | 100% of admissions |
| | | 75 percentile cut-offs considering all branches | 90 percentile cut-off considering all branches |
| 2 | Accreditation | 3 years NBA accreditation for the departments applying first time. | 6 years NBA accreditation for all departments |
| | | 6 years NBA accreditation for the departments applying second time. | |
| | | To score more than 3.25 in order to be NAAC A+ accredited. | NAAC A++ accreditation |
| | | Score more than 350 points in NIRF | Score more than 350 points in NIRF |
| | | | ABET accreditation in 3 years |
| To become Autonomous Institute in 2 years | | | |
| 3 | Human resource development | 15:1 or better student-faculty ratio | 15:1 or better student-faculty ratio |
| | | 1:2:6 cadre ratio | 1:2:6 cadre ratio |
| 4 | Faculty development | 300 FDPs/ STTPs/ Workshops to be attended by the faculties | 300 FDPs/ STTPs/ Workshops to be attended by the faculties |
| | | 30% faculties to complete Ph.D. | 60% faculties of the Institute to complete PhD |
| | | 10% faculties of the Institute to be recognized as PhD guide | 30% faculties of the Institute to be recognized as PhD guide |
| | | 10 faculty-clusters with advanced skills sets | Train 10% faculties per year under the "Train the trainer" program |
| 5 | National and International Collaborations | One faculty exchange program with National Institute of repute | One faculty exchange program with National Institute of repute per year |
| | | Establish one International collaboration | Establish five International collaboration |
| | | Industry Institute Interaction activities with 1:30 Industry-Student ratio | Industry Institute Interaction activities with 1:10 Industry-Student ratio |
| | | 10% paid internships | 100% paid Internships |
| | | Consultancy activities with the amount of Rs. 15,00,000/- per year | Consultancy activities with the amount of Rs. 15,00,000/- per year |

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|-----------|--|---|---|
| | | One Industry sponsored laboratory in each Department | One Industry sponsored laboratory in each Department |
| 6 | Entrepreneurship and Higher Education | Mentor at least one budding entrepreneur in a class of 60 students. Guide the students interested in Higher Education. | Mentor at least one budding entrepreneur in a class of 60 students. |
| 7 | Research and development | 5 interdisciplinary projects | 10 research projects funded by Industries or Apex bodies |
| | | 72 research papers in SCOPUS/ SCI/ UGC indexed journals every year | 72 research papers in SCOPUS/ SCI/ UGC indexed journals every year |
| | | 10 granted patents per year | 10 granted patents per year |
| | | 5 products per year | 5 products per year |
| | | Organise minimum 10 FDP/STTP/Workshops | Organise minimum 10 FDP/STTP/Workshops per year |
| | | Organize one International Conference | Organize one International Conference per year |
| 8 | Succession ratio | 100% succession ratio without backlog 100 % results from FE to BE | 100% succession ratio without backlog 100 % results from FE to BE |
| 9 | Alumni Connect | One portal for alumni | 80% involvement of alumni in Institute activities |
| | | 15% involvement of alumni in Institute activities | Strong alumni network and introduce 1:10 alumni-student relationship |
| 10 | Career Guidance Club | Establishment of career guidance club for opportunities in Government and private sectors | Establishment of career guidance club for opportunities in Government and private sectors |
| 11 | Training and Placement | 100% placements of the students with average package 6 LPA | 100% placements of the students with average package 7 LPA |
| 12 | Extra -Curricular Activities Sports | 1/3rd of the students' participation in sports activities with the target: <ul style="list-style-type: none"> ○ 2 awards at International level ○ 4 awards at State level ○ 5 awards at University level ○ 10 awards at Zonal level | 1/3rd of the students' participation in sports activities with the target: <ul style="list-style-type: none"> ○ 2 awards at International level ○ 4 awards at State level ○ 5 awards at University level ○ 10 awards at Zonal |

| | | | |
|-----------|---|--|--|
| | | | level |
| 13 | Cultural activities | <ul style="list-style-type: none"> ○ 2 awards at International level ○ 4 awards at State level ○ 5 awards at inter-collegiate level ○ 10 awards at Zonal level | <ul style="list-style-type: none"> ○ 2 awards at International level ○ 4 awards at State level ○ 5 awards at inter-collegiate level ○ 10 awards at Zonal level |
| 14 | NSS | 5 extension and outreach programs per year | 5 extension and outreach programs per year |
| 15 | NCC | 5 extension and outreach programs per year | 5 extension and outreach programs per year |
| 16 | Skill development | 5 skill development programs per year | 5 skill development programs per year |
| 17 | Student certification | 20% of the students to complete Global certification courses | 20% of the students to complete Global certification courses |
| 18 | Upliftment of society | 10 techno-social community activities Adoption of one Village | 10 techno-social community activities per year |
| 19 | Latest trends and Higher education | Introduction of latest trends and higher education | Introduce two advanced under-graduate programmes in the Institute |
| | | | Introduce Post Graduate programmes in each department |
| 20 | Green energy | | 30% electrification of campus through solar energy |