Yeshwantrao Chavan College of Engineering, Nagpur
Strategic Plan 2023-2028

Executive Summary:

Yeshwantrao Chavan College of Engineering, located in Wanadongri Nagpur, is poised for growth as the engineering sector in the region continues to flourish. The demand for skilled manpower in the field is rapidly increasing, and the college is well-positioned to contribute to meeting this demand through its quality education and training programs.

In order to ensure that the college is able to fully realize its potential and make a significant impact on the industry, a 5-year strategic plan has been developed. This plan focuses on several key areas, including curriculum development, faculty development, research and innovation, and infrastructure improvement.

One of the primary drivers behind the need for this strategic plan is the National Education Policy 2020 set forth by the Government of India. This policy places a strong emphasis on ensuring that higher education institutions are able to meet the needs of the rapidly evolving economy and workforce. By implementing this strategic plan, Yashwantrao Chavan College of Engineering will be well-positioned to achieve the targets set forth by the policy.

The plan includes several initiatives to enhance the quality of education and training provided by the college, such as introducing new courses, updating existing curricula, and investing in state-of-the-art facilities and technology. Additionally, the plan includes measures to attract and retain top-tier faculty members, as well as increase collaboration and partnerships with industry and research institutions.

Overall, the 5-year strategic plan for Yeshwantrao Chavan College of Engineering is designed to ensure that the institution is able to meet the growing demand for skilled manpower in the engineering sector and make a significant contribution to the development of the region. By focusing on key areas of development and investing in the right resources and partnerships, the college is well-positioned to achieve its goals and help shape the future of engineering education in India.

Preamble:

Yeshwantrao Chavan College of Engineering (YCCE) in Nagpur was founded in 1984 by Nagar Yuwak Shikshan Sanstha with the primary goal of offering quality technical education to the Vidarbha region of Maharashtra state. Since its inception, YCCE has been successful in attracting highly competent faculty members, talented students, and improving its infrastructure facilities.

Recognition & Accreditation:

YCCE, located in Nagpur, is an approved institution by AICTE, New Delhi and recognized by the UGC under sections 2(f) and 12(b) of UGC Act 1956. The UGC has granted Autonomous Status to YCCE in 2010 under Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. Furthermore, the institution has been accredited by NAAC with an A++ Grade (CGPA: 3.60/4.0) and all eligible UG programmes have been accredited and reaccredited by NBA, New Delhi since 2003. Additionally, YCCE has consistently ranked within the top 200 institutions in Govt. of India's NIRF ranking since 2016.

Programs offered:

YCCE provides a range of engineering programmes, including 12 undergraduate and 6 postgraduate courses, and currently has an enrolment of approximately 5000 students. It serves as a research centre for RTM Nagpur University for all engineering programmes, with 151 research scholars having received their Ph.D. degrees to date and 81 currently pursuing their Ph.D. degrees. Additionally, all departments offer B.Tech. Honors and Minor programs to students.

Faculty Strength:

YCCE boasts a highly qualified, experienced, and devoted faculty, who have filed a total of 109 patents, out of which 93 have been published, and 68 have been granted. Furthermore, they publish over 300 papers annually in indexed journals and conferences.

Industry Connect:

The institution has a robust relationship with the industry, with over 100 Memorandum of Understandings (MoU's) signed for research and development, student internships, and job placements. In the 8th semester, all students are given a semester-long industry internship opportunity. Furthermore, 80% of eligible students are placed through on-campus recruitment.

Vision & Mission:

Vision:
Our vision is to become the leading institution of choice, offering cutting-edge, research-oriented, and values-driven professional education to effectively serve the wider community.

Mission:
YCCE is dedicated to:
• Attracting the most exceptional talent and fostering a learning environment
• Implementing inventive and effective teaching, learning, and research methodologies
• Developing Industry-Institute partnerships
• Fostering students' comprehensive growth and aiding them in achieving their desired careers

Strengths, Weaknesses, Opportunities and Concerns (SWOC) Analysis:

Strengths:
• One of the most preferred institutions for engineering education in Central India
• An autonomous institution with consistent accreditation and ranking from recognized authorities
• Well-established infrastructure, conducive academic ambience, and innovative teaching-learning environment
• Centers of Excellence and Technology Business Incubator (TBI) promoting entrepreneurship and innovation
• Highly qualified, experienced, and competent faculty members
• Significant number of patents/copyrights published and active R&D Projects
• Recognized research centers by RTM Nagpur University for PhD
• Consistent track record of good placement in multinational companies
• Strong industry and academia collaboration
• Mandatory semester-long industry internship for all students
• Vast and successful alumni network spread across the globe.

Weakness:
- Limited national and international visibility of faculty members
- Low number of faculty members with a Ph.D. qualification
- Limited commercialization of intellectual property generated by the institution
- Limited collaboration with national agencies and industries for consultancy projects
- Insignificant success rate in receiving research funding from government funding agencies
- Limited partnerships with foreign universities
- Locational disadvantage for placement in core industries.

Opportunities:
- Providing a diverse range of certificate, diploma, and degree courses in alignment with the National Education Policy 2020
- Developing and delivering high-quality e-content for renowned platforms like SWAYAM/NPTEL to enhance online learning opportunities
- Exploring potential funding sources to enhance laboratories with state-of-the-art facilities, promoting advanced research and experimentation
- Strengthening collaborations with esteemed industries and academic institutions to foster research, consultancy, training, and internship opportunities for students.
- Offering industry-aligned courses to equip students with the necessary skills and knowledge to become job-ready professionals
- Supporting aspiring entrepreneurs through the YCCE Technology Business Incubator (TBI) to foster innovation and promote start-ups
- Leveraging the strong alumni network to enhance the college's development and create mutually beneficial opportunities for current students and alumni.

Challenges:
- Adapting to the rapidly changing requirements and expectations of industries, society, and government policies, ensuring that educational programs remain relevant and responsive.
- Staying updated with global advancements in pedagogy, research, and competitive employment landscapes to provide students with a competitive edge.
- Mitigating the issue of brain drain, whereby students are drawn to metropolitan areas, by creating a conducive environment that fosters growth, innovation, and opportunities within the institution's locality.
- Addressing the potential competition posed by the entry of foreign university campuses in India, by emphasizing the unique strengths and advantages of the institution, such as a strong faculty base, industry collaborations, and a supportive learning ecosystem.

Strategic Plan (2023-2028):

Yeshwantrao Chavan College of Engineering (YCCE) aims to be a leader in delivering high-quality education in engineering, technology, and management, ensuring the development of skilled and industry-ready professionals. To achieve this vision, the institute has formulated a comprehensive five-year strategic plan spanning from 2023-2024 to 2027-2028. This strategic plan outlines the strategies, action plans, and defined timelines necessary to accomplish our goals. The plan has been developed taking into account the following factors:

• The institute's Vision and Mission
• A thorough SWOC (Strengths, Weaknesses, Opportunities, and Concerns) analysis
• Parameters set by accrediting, ranking, and assessing agencies
• The implementation of the National Education Policy (NEP) 2020
• Expanding institutional outreach
• Addressing future challenges

The strategic plan serves as a roadmap to guide YCCE towards its goals and objectives over the next five years, ensuring that the institute remains at the forefront of education and meets the evolving needs of the industry and society.

Goal 1: **To enhance an academic environment that fosters intellectual and professional development, empowering individuals to achieve their academic and career goals.**

Objectives:
1.1. To encourage academic excellence by designing a modern, technology-driven curriculum that utilizes appropriate pedagogical approaches.
1.2. To establish a nurturing environment that facilitates the holistic growth of students.

Goal 2: **To become one of the most sought-after academic institutions for both undergraduate and postgraduate programs in Engineering, Technology, and Management.**

Objectives:
2.1. To attract and enrol students with academic potential from diverse segments of society.
2.2. To establish a strong and visible presence of the Institute within academia, industry, and society at large.

Goal 3: **To promote research, consultancy, innovation, and entrepreneurship activities that tackle future challenges.**

Objectives:
3.1. To improve the quality, productivity, and impact of research endeavours.
3.2. To develop an ecosystem that fosters innovation, incubation, and consultancy.

Goal 4: **To recruit and retain a competent faculty, staff, and administrative team to keep pace with the constantly evolving landscape of higher education.**

Objectives:
4.1. To attract, recruit, and retain a workforce of the highest calibre.
4.2. To provide training and development opportunities to ensure that the workforce stays abreast of the changing landscape.

Goal 5: **To facilitate the consistent upgrading of infrastructure and amenities.**

Objectives:
5.1. To augment the infrastructure, creating inclusive facilities with modern amenities.
5.2. To strengthen IT infrastructure & resources, enabling the institution to thrive in the digital era.

Goal 6: **To integrate multidisciplinary learning opportunities to effectively implement the National Education Policy (NEP) 2020.**

Objectives:
6.1. To expand educational opportunities in alignment with the National Education Policy (NEP) 2020.
6.2. To incorporate vocational education and life skill building into the curriculum.

Goal 1: **To enhance an academic environment that fosters intellectual and professional development, empowering individuals to achieve their academic and career goals.**

Objectives	Strategies	Action Plan
1.1. To encourage academic excellence by designing a modern, technology-driven curriculum that utilizes appropriate pedagogical approaches.	Stimulating learning experiences through introducing new programmes and implementing effective teaching-learning that offer flexible opportunities.	Offer Integrated programmes (UG & PG): 02 in 5 years. MBA Programme: Jointly with Engineering + Management Institute + Industry: In 2023-24 Introduce Internationally relevant courses in PE: 01 per department per year. Offer new open/free elective courses: 01 per department per year. Launch new minor and honors programmes: 01 per department per year. Implement online learning up to 40% (as per UGC guidelines) within 5 years, with compulsory mentoring. Online learning up to 40% (as per UGC guidelines) in 5 years with compulsory mentoring. Allow for co-teaching of a course, with up to 20% of syllabus delivery by the industry: 01 per semester. Short term Internship by students in IIT/NITs= 05 students per dept. per year. No. of innovative T-L methods= 4-5 per department per year.
	Adopt a critical and engaged approach towards learning.	Implement Cornerstone Student Projects: 20 Projects per year from the 2nd year. Include Capstone project in the final year: 10% Industry-based per department per year. Semester-long Internship: 100% participation by UG students (20% in reputed industries). Year-long Internship for PG students. Organize Industry/Site Visits: 02-04 per department per year.

1.2. To establish a nurturing environment that facilitates the holistic growth of students.	Providing guidance and support for placement, higher studies, entrepreneurship, and other academic needs, and measuring its outcomes.	Placement	Student Orientation Programs on outcome-based education = 01 per dept. per year. Campus Recruitment Training = 120 Hrs. YCCE Eagles Scheme = 100 students per year (375 Hrs. Training). YCCE Career Advancement Program (YCAP) = 200 Hrs. Module. Student to attend value-added course = 01 per semester. Domain knowledge classes before the visit of companies by each dept. = one week. Certificate course by dept. = 2 per dept. per year. Industry/Site visits = 2 per dept. per year. Industry internship = 100% students. Outcomes: Campus Placement = 80% of eligible students. Core Branch Student Placement = 50-60%. Highest Package = 25-35 Lakhs. Increase the average salary by 5% every year.
		Higher Studies	Student enrollment for competitive examinations = 20% students per dept. per year. GATE Club = 1 per dept. Expert Lectures (GATE Club) = 05-07 per dept. Guidance sessions for GRE/TOEFL etc. = 05 per year by IRO. Help Desk for abroad Higher Studies by IRO. Outcomes: 10% students joining higher studies.
		Entrepreneurship development/ Promoting Start up	Organizing entrepreneurship awareness programs = 10 per year. Interaction with successful entrepreneurs = 05 per year. Promote innovative startup ideas = 05 ideas per dept. per year Students' projects to be incubated = 05 per year at YCCE TBI. Students to participate in Idea Contest = 10% per year. *Outcomes:* Entrepreneur per year = 5 New startup registered per year = 05
	Professional Society Chapters and Student Club/Forums		Professional Society Chapter = 1 per dept. PS Chapter Activities = 05 per chapter per year. Student forums = 1 per dept. Students Clubs activities = 08 per club per year. NSS Unit activities = 20 per year.

	Student support for learning and development.	Academic reading/writing/speaking activities = 02 per dept. per year. Help Desk by each dept. = Weekly schedule. Remedial classes for slow learners = each dept. Shadow teaching by each dept. by 05-10 expert senior students per semester. Student Mentor-Mentee Scheme. Psychological Counselor. Meditation/YOGA activities = 10 per year. Interaction with Role Model = 1 per year. Interaction with Research Leaders = 1 per year. Involving students in institutional/dept. committees = 10 per dept. per year. Capacity development programs = 05 per dept. per year.
	Opportunities for social engagement of students towards social responsibilities and values.	Gender Sensitization Plan to be prepared by Dean SA. Gender Sensitization activities = 07 per year. Extension Activities to be conducted = 40 per year. Outreach programs to be conducted = 07 per year. Technology-based projects for societal issues to be undertaken = 5 per dept. per year. Donation Drives = 02 per year.

Goal 2: **To become one of the most sought-after academic institutions for both undergraduate and postgraduate programs in Engineering, Technology, and Management.**

Objectives	Strategies	Action Plan
2.1. To attract and enroll students with academic potential from diverse segments of society.	Attract quality students from diverse communities.	• Outreach programmes on higher education opportunities = 02 per dept. per year. • Scholarship to meritorious students = 02 topper students per branch. • Implement YCCE Eagles Scheme = 100 students per year. • YCAP program for all years. • Industry internship with stipend = 25% students. • Offer industry-aligned professional electives = 02-03 per dept. per year. • Offer free/open electives with CBCS = 02-03 per dept. per year. • International student admissions = 10% of intake.

2.2. To establish a strong and visible presence of the Institute within academia, industry, and society at large.	Ensuring continuous quality assurance and improvement.	• NIRF ranking in top 100 within 3 years. • NBA accreditation of 2 UG programs for 6 years in the next 5 years. • Maintaining current grade of NAAC accreditation in the next cycle. • Laboratories NABL Accreditation = 01 lab per department. • ABET accreditation for core engineering programs = 01 by 2028. • Environmental audits every year.
	Presence of YCCE in public domain.	• Workshops/FDPs on NEP by experts = 02 per year. • NEP think tank of YCCE faculty = 10 faculty. • Faculty modules on SWAYAM/NPTEL: 02 per year. • Handholding of aspiring Institutes = 01 per year. • Digital University Hub: YCCE as a spoke by 2024. • Active social media presence of YCCE.
	Enhance the role of stakeholders in decision making and the curriculum enrichment.	• Dept. Industry Advisory Board by each dept. • Organize Industry conclave once in 2 years. • No. of Industry persons to be invited as Resource person = 5 per dept. per year. • Partial curriculum delivery by industry Experts = 1 course per dept. per sem. • Online meeting for sharing success stories of Alumni with students: 1 per dept. per semester. • Alumni meets at various places = 1 per year. • Alumni Meet by Dept. = 1 per year. • No. of Alumni to be invited as resource person = 5 per dept. per year. • No. of alumni to be invited for placement = 10 per year. • No. of students to be sent for internship in Alumni Company = 50 per year. • Overseas alumni involvement = 20-30 per year. • International Internship for students in alumni companies = 10 per year. • No. of Alumni involvement as innovator in the campus start-up ecosystem = 3 per dept. per year. • Structured Feedback from Stakeholders every year.

	Attain higher levels of achievements in co-curricular and extra-curricular activities.	• No. of students participating in IIT, NIT, State-level, National Level activities = 300 per year. • Prizes/Awards won by students = 50 per year. • Participation of the students in activities = 5% increase per year. • Students' achievements in activities = 5% increase per year.

Goal 3: **To promote research, consultancy, innovation, and entrepreneurship activities that tackle future challenges.**

Objectives	Strategies	Action Plan
3.1. To improve the quality, productivity, and impact of research endeavours.	Facilitate quality research, funding, and publications through various research-centric policies.	• No. of International Conferences to be organized = 3 per year. • Formation of Thrust Area-wise research group = 2-3 per dept. • Connect with research parks supported by Industries for joint activities = 1 per year. • Research budget for each dept. = 10 Lakhs per year. • Research methodology related workshops = 5 per year. • Research Conclave to be organized = 1 per year. • Seed fund to projects = 2 Lakhs per dept. per year. • No. of externally funded projects = 2 per dept per year. • No. of internally funded projects = 3 per dept per year. • No. of proposals to be submitted to various funding agencies = 45 per year. • No. of Faculty publications in SCI Journals = 2 per dept per year. • No. of quality publications by UG Students (Project Based) = 7-10 per dept. per year. • STTP/FDP to be organized: 1 week = 2 OR 2 weeks = 1 per dept. per year. • No. of Invited talks to conduct = 5 per year. • Student Workshops/Seminars to be organized = 4 per dept. per year. • Workshop/Training Prog. to be organized for support staff = 5 per year.

	Visibility of research work to the outside world.	- Indexing the institute journal in WoS/SCOPUS database within 2 years. - Enhance paper publication in the indexed SCI/WoS/Scopus journals/conference = 100% faculty publications. - Enhance paper publication WoS/SCOPUS citations = 700-1000 per year. - Research scholars registration per supervisor = 02 per year (subject to availability of seats). - Registration of every PhD qualified faculty as a PhD supervisor within 1 year.
3.2. To develop an ecosystem that fosters innovation, incubation, and consultancy.	Establish linkages with reputed industries and organizations.	- No. of MoUs with academic institutes/industries = 03 per dept. per year. - No. of MoUs with Research Institutions = 01 per year. - No. of Joint Student Projects with Industries = 6 per dept per year. - No. of Joint Student Projects with Research Organizations = 01 per dept. per year. - No. of Students undergoing Industry Internship = 100% per year. - No. of Faculty undergoing Industry training/Internship = 01 per dept. per year. - No. of Training programs by industry personnel = 2 per dept. per year. - Guest Lectures by Industry personnel = 02 per dept. per year. - Training programs for industries = 02 per CoE per year.
	Facilitate Innovation and Incubation ecosystem with ED cell activities, idea competitions and incubation of ideas through TBI.	- No. of startups = 2 per year. - Projects to Patents/Product = 02 per dept. - Commercialization of innovation = 01 per dept. - No. of Innovative projects = 03 per dept. - No. of societal and economically important projects = 5 per dept. - Addition of innovative projects in innovation gallery up to 10 per year. - No. of Training program on startups and entrepreneurship = 15 per year. - No. of Competition on startups = 02 per year. - No. of Competition on entrepreneurship = 01 per year.

	Development of intellectual property rights.	• No. of IPR activities to organize = 05 per year. • Patents to be filed = 5 per dept. per year. • Patents to be published = 3 per dept. per year. • Copyrights to be submitted = 10 per dept. per year. • Copyrights of lab manuals = 02 per dept. per year. • Monographs (Indexed) = 02 per dept. per year.
	Invest strategically in consultancy infrastructure and resources.	• NABL Accreditation of Labs = 03-05 Labs in 5 years. • Purchase of consultancy equipment = 01 per dept. per year. • No. of Centers of Excellence = 1 per dept. • No. of Industry-supported labs = 1 per dept. • No. of Consultancy Projects = 3 per dept. per year. • Amount of consultancy = 10 Lakhs per dept. per year.

Goal 4: **To recruit and retain a competent faculty, staff, and administrative team to keep pace with the constantly evolving landscape of higher education.**

Objectives	Strategies	Action Plan
4.1. To attract, recruit, and retain a workforce of the highest calibre.	Appointment of competent faculty/ staff.	**New appointment of faculty in the department:** • 10% of faculty with Ph.D. and any one degree from IIT/NIT. • Appointment of Professor of Practice = 01 per dept. **New Appointment of staff:** • Programmers in computer centers: 01 per dept. • Technical Staff with Degree/Diploma: 02 per dept. • Technical staff with computer certification: 01 per Core dept.
	Retention of competent faculty/ staff.	• In-service development programs = 01 per year by faculty/staff. • Time-bound promotion under CAS. • Implementation of internal promotion scheme.

| 4.2. To provide training and development opportunities to ensure that the workforce stays abreast of the changing landscape. | Opportunities for qualification improvement and skills upgradation. | **Faculty:**
• Faculty Mentor-Mentee Scheme.
• Faculty Induction and Pedagogical program for newly joined faculty = 01 per year.
• AWL Targets to faculty by HoD as per SOP.
• Non-PhD faculty to register for PhD = 31/08/2023 (Existing) and within 1 year for new recruits.
• Faculty to attend FDP = 95% faculty per year.
• Use of NPTEL/SWAYAM resources in T-L = 02 per faculty per year.
• NPTEL/SWAYAM Course Certification = 15% faculty per dept. per year.
• Faculty training in reputed labs = 05 per year.
• Faculty sabbatical = 01 per dept. per year.
• Faculty as resource person outside institutes = 25% per dept. per year.
• Empanelment of faculty as reviewers for national and international journals = 02 per dept. per year.
• Faculty Skill up-gradation programs = 02 per dept. per year.
• Faculty to attend entrepreneurship awareness program = 1 per dept. per year.

Technical Staff:
• Organize Training Programs for staff = 5 per year.
• Attend Certification course = 2 per dept. per year.
• Attend skill development programs = 25% staff per year per dept. |
| | Faculty association with professional bodies. | • Professional bodies membership = 02 per faculty.
• Organize PS activities = 02 per dept. per year.
• Faculty participation in programs organized by professional bodies = 20% of faculty per dept. per year. |

Goal 5: **To facilitate the consistent upgrading of infrastructure and amenities.**

Objectives	Strategies	Action Plan
5.1. To augment the infrastructure, creating inclusive facilities with modern amenities.	Continuous up-gradation of infrastructure and facilities.	• Smart classrooms = 1 per dept. per year. • CT-enabled classrooms = 100% • Development of Centre of Excellence = 01 per dept. • New research facilities creation = 01 equipment per dept. per year. • Consultancy facilities to be added = 01 new equipment per dept. per year. • Industry-supported lab. = 01 per dept.

	Enhance facilities for sports, arts, and recreation.	• Upgradation of the basketball & badminton court. • Creation of indoor sport facilities. • Development of recreation club. • Development of student hub.
5.2. To strengthen IT infrastructure & resources, enabling the institution to thrive in the digital era.	Improving Existing IT Infrastructure and resources	• No. of virtual laboratories = 01 per dept. • Usage of open-source software = 05-07 per dept. • No. of computers in the digital library = 100 in 2 years. • No. of new e-books in the library = 100 per dept. per year. • Subscription of new quality e-journals = 02 per dept. • e-Library/repository to create: 2 years. • Remote access of digital resources through student apps. • Membership of NDL (National Digital Library) by all faculty and students = December of every year.

Goal 6: **To integrate multidisciplinary learning opportunities to effectively implement the National Education Policy (NEP) 2020.**

6.1. To expand educational opportunities in alignment with the National Education Policy (NEP) 2020.	Adopt continuous and comprehensive learning with innovative approach.	• Entry/exit with certification at various levels. • No. of integrated UG/PG programmes = 02 in 5 years. • Internationally relevant new courses in PE = 01 per department per year. • No. of new open/free elective courses = 01 per department per year. • No. of new minor and honors programmes = 01 per department per year. • No. of new certificate courses to offer = 01 per department per year. • Offer foreign language courses = 04 per year. • Students to be sent for credit transfer to reputed institutions = 35-40 per year. • MoU's for collaboration with world-class universities/research institutes = 03 per year. • International academicians' involvement = 02-05 per year. • International students' admissions = 10% of intake. • International Joint activities = 3 per year. • International Internship to students = 25 per year. • Faculty trainings on new pedagogies = 100% faculty. • Leadership training to functional heads = 01 each per functional head per year. • Online learning up to 40% (as per UGC guidelines) in 5 years with compulsory mentoring.

	Assessment for development & not for judgement with revamped evaluation Process.	• Regular formative assessment: for MSE, ESE & TA. • Direct & Indirect Assessment approach = All courses. • Rubric-based evaluation by each dept. • Continuous evaluation for theory & Lab. courses by each dept. • Peer and self-assessment approach = by each dept. • Portfolio creation by each student.
6.2. To incorporate vocational education and life skill building into the curriculum.	Collaborate for Vocational Education.	• Offer Vocational Education = 01 course per dept. • MoU's with ITIs, Polytechnics, Local industries, Hospitals, and NGOs = 01 per dept. • Training to local teachers in schools and HEIs on vocational education = 02 per year. • Quality online content creation for vocational courses = 02 courses per year. • Bridge Courses to offer = 05 per year.
	Promote Life Skill Development.	• MoU's with industry/organization for life skill development activities = 10 per year. • Organize Life Skill development activities = 25 per year.