

ADHIYAMAAN COLLEGE OF ENGINEERING

(An Autonomous Institution)

“Institutional Scheme for NEP 2020 Aligned Holistic and Multidisciplinary Education”

Academic Year 2024–25

1. INTRODUCTION

Adhiyamaan College of Engineering (Autonomous), Hosur, is committed to providing an education that goes beyond the acquisition of disciplinary knowledge and technical competencies. The institution believes that higher education should develop students as competent professionals, ethical individuals, responsible citizens, lifelong learners and socially conscious members of society. Accordingly, the institution adopts a comprehensive approach to holistic education that integrates academic excellence with values, skills, creativity, innovation, physical fitness, emotional well-being, cultural awareness and social responsibility.

The scheme is aligned with the broad principles of the National Education Policy (NEP) 2020, with emphasis on holistic and multidisciplinary education, flexibility in learning pathways, Indian Knowledge Systems, experiential learning, skill development, student mobility, technology-enabled education and development of ethical and responsible human beings. It provides an institutional framework for Universal Human Values (UHV), Indian Knowledge System (IKS), multidisciplinary and interdisciplinary education, flexible curriculum, student mobility, Academic Bank of Credits (ABC), experiential learning and comprehensive student support facilities.

2. VISION OF THE SCHEME

The vision of the scheme is to create a learner-centric educational ecosystem in which every student is provided opportunities to acquire knowledge, develop professional and life skills, understand values, appreciate Indian heritage, explore multiple disciplines, pursue individual interests and participate in academic, cultural, social, physical and innovation-oriented activities.

The institution aims to transform students from passive recipients of knowledge into independent learners, problem solvers, innovators, ethical professionals and socially responsible citizens.

3. OBJECTIVES

1. Promote holistic development through academic, professional, ethical, physical, emotional, social and cultural education.
2. Inculcate Universal Human Values and professional ethics.
3. Create awareness and appreciation of the Indian Knowledge System and India's intellectual and cultural heritage.
4. Provide opportunities for multidisciplinary and interdisciplinary learning.
5. Provide flexibility through electives, MOOCs, certifications, internships and skill-oriented courses.
6. Facilitate academic mobility and credit transfer opportunities.
7. Support effective implementation and awareness of the Academic Bank of Credits.
8. Encourage experiential, project-based, problem-based and community-oriented learning.
9. Promote innovation, entrepreneurship and research-oriented learning.
10. Provide comprehensive mentoring, counselling and academic support.
11. Provide opportunities for sports, cultural activities, clubs and social engagement.
12. Ensure inclusive education and equal learning opportunities.
13. Continuously assess and improve the effectiveness of holistic education initiatives.

4. SCOPE OF THE SCHEME

The scheme shall cover all undergraduate and postgraduate students and shall be implemented through academic departments, IQAC, academic administration, student support systems, clubs, cells and institutional committees. It encompasses Universal Human Values and Ethics, Indian Knowledge System, multidisciplinary and interdisciplinary education, flexible curriculum, academic mobility, Academic Bank of Credits, experiential and project-based learning, skill and employability development, research and innovation, entrepreneurship, physical and mental well-being, sports and cultural development, mentoring and counselling, community engagement, inclusive education and digital learning.

5. UNIVERSAL HUMAN VALUES AND VALUE-BASED EDUCATION

The institution recognises that professional competence without ethical and social responsibility may not adequately prepare students to address complex challenges. Universal Human Values education is therefore promoted to help students understand harmony within themselves, with family, society and nature. The institution provides opportunities to develop respect, trust, empathy, responsibility, cooperation, integrity, compassion, honesty, justice and

environmental consciousness through dedicated courses, mentoring, professional ethics, community engagement and institutional activities.

- Offer UHV-related courses as prescribed in the curriculum.
- Organise UHV awareness programmes, workshops, seminars and expert lectures.
- Integrate ethical and societal dimensions into classroom teaching.
- Promote professional ethics in engineering and technology education.
- Encourage socially relevant student projects and community service.
- Conduct programmes on environmental responsibility and sustainable living.
- Provide mentoring and counselling support.
- Promote respect for diversity, dignity, inclusion and responsible digital citizenship.

6. INDIAN KNOWLEDGE SYSTEM (IKS)

ACE recognises the importance of integrating India's rich knowledge traditions with contemporary education. Indian Knowledge System encompasses diverse contributions in mathematics, astronomy, medicine, agriculture, architecture, metallurgy, literature, philosophy, linguistics, environmental practices, yoga and traditional technologies. The institution facilitates opportunities to understand the relevance of these traditions through academically appropriate and evidence-based learning.

- Introduce IKS-related courses and electives.
- Organise seminars and guest lectures on Indian knowledge traditions.
- Conduct programmes on Indian scientific and technological heritage.
- Promote awareness of traditional mathematics, astronomy, health practices and environmental knowledge.
- Encourage yoga and wellness activities.
- Support student projects on indigenous technologies and traditional knowledge.
- Conduct heritage and cultural awareness programmes.
- Promote Indian languages, literature and interdisciplinary IKS projects.

7. MULTIDISCIPLINARY AND INTERDISCIPLINARY EDUCATION

Modern societal challenges are complex and cannot always be addressed through a single discipline. The institution therefore promotes multidisciplinary and interdisciplinary learning so that students can understand problems from multiple perspectives and collaborate across departments.

- Offer open electives and multidisciplinary courses.

- Facilitate interdisciplinary electives and projects.
- Promote value-added and skill enhancement courses.
- Organise innovation challenges, hackathons and interdepartmental competitions.
- Encourage joint research and industry-sponsored multidisciplinary projects.
- Promote multidisciplinary student clubs.

Illustrative multidisciplinary combinations:

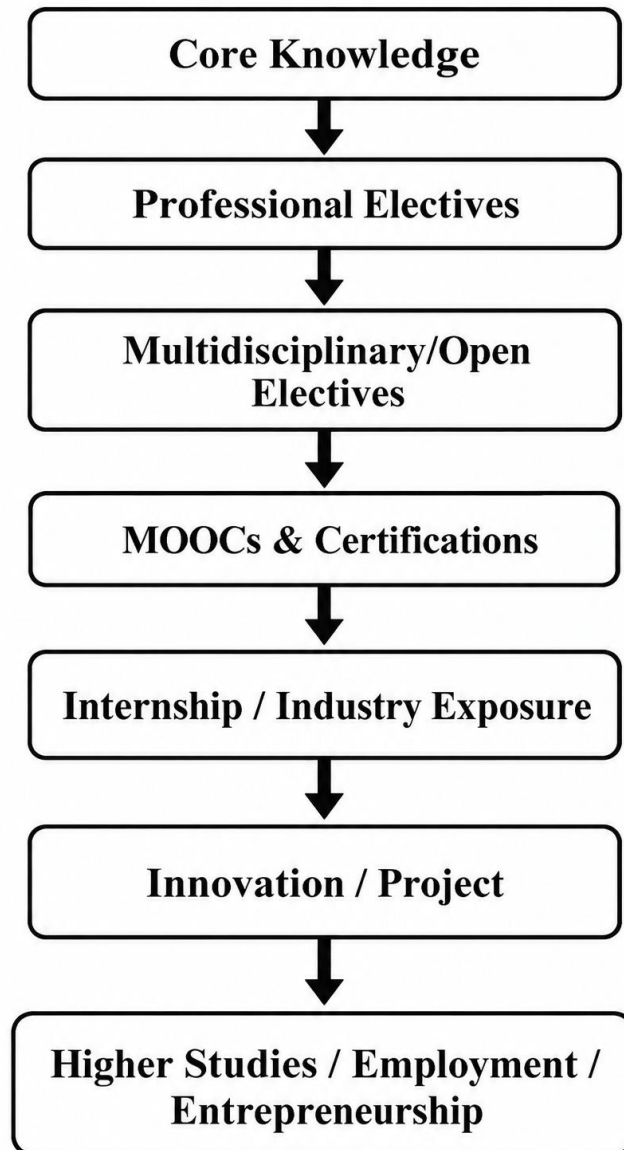
- AI + Biotechnology: Artificial Intelligence in Healthcare and Bioinformatics.
- AI + Mechanical Engineering: Robotics and Intelligent Manufacturing.
- Civil + Environmental Science: Sustainable Infrastructure.
- ECE + Computer Science: Embedded AI and IoT.
- Chemical Engineering + Biotechnology: Bioprocess Engineering.
- Engineering + Management: Entrepreneurship and Technology Management.
- Engineering + Humanities: Communication, Ethics and Society.

8. FLEXIBLE CURRICULUM

The institution recognises that students have different interests, career aspirations, learning abilities and professional goals. A flexible curriculum enables students to select learning opportunities within approved academic structures. Flexibility is provided through professional and open electives, multidisciplinary courses, value-added courses, MOOCs, certifications, internships, skill courses, projects and innovation-oriented learning.

- Professional and open electives.
- Multidisciplinary electives.
- Value Added and Skill Enhancement Courses.
- MOOCs through approved platforms such as SWAYAM/NPTEL and other recognised platforms.
- Industry certification programmes.
- Internships and industrial training.
- Research and innovation projects.
- Entrepreneurship, design thinking and problem-solving programmes.

Illustrative Student Learning Pathway:



9. STUDENT ACADEMIC MOBILITY

Student mobility provides opportunities to gain exposure to different academic environments, institutions, industries, cultures and learning methodologies. The institution encourages mobility through collaborations, MoUs, exchange programmes, internships, research programmes, MOOCs and credit transfer mechanisms, subject to applicable academic and regulatory provisions.

- Student and academic exchange programmes.
- Inter-institutional learning and credit transfer opportunities.

- Industry and research internships.
- Short-term training and academic programmes.
- National and international academic programmes, where feasible.
- Participation in competitions, hackathons and collaborative programmes.
- Visits to research institutions, industries and innovation centres.

10. ACADEMIC BANK OF CREDITS (ABC)

The Academic Bank of Credits provides a mechanism for digitally maintaining academic credits earned by students from recognised learning opportunities, subject to applicable regulations and institutional procedures. The institution creates awareness and facilitates registration, documentation and credit-related processes.

- Create awareness regarding ABC and its academic significance.
- Facilitate student registration as applicable.
- Maintain appropriate academic records.
- Verify eligible academic credits.
- Facilitate credit transfer in accordance with applicable regulations.
- Guide students regarding approved external courses.
- Monitor ABC-related activities through the Academic Section and IQAC.

11. EXPERIENTIAL AND PROJECT-BASED LEARNING

The institution believes that meaningful learning occurs when students apply theoretical knowledge to real-world situations. Experiential learning therefore forms an important component of holistic education through projects, internships, industrial visits, field work, laboratory activities, problem-solving exercises, case studies, simulations and community projects.

- Project-Based Learning and Problem-Based Learning.
- Case studies and simulations.
- Industrial and field visits.
- Internships and industrial training.
- Laboratory-based learning.
- Capstone and design projects.
- Community projects, hackathons and innovation challenges.

12. SKILL AND EMPLOYABILITY DEVELOPMENT

Academic learning is supplemented with professional and employability skills required by contemporary industries. Students are encouraged to participate in technical skill programmes, communication and aptitude training, industry certifications, resume development, interview preparation, leadership programmes, entrepreneurship training and industry interaction.

- Technical skill development programmes.
- Communication, aptitude and reasoning training.
- Digital and programming skills.
- Industry certifications.
- Resume and interview preparation.
- Group discussion and presentation skills.
- Leadership and entrepreneurship programmes.
- Industry interaction and placement-oriented training.

13. RESEARCH, INNOVATION AND ENTREPRENEURSHIP

Holistic education includes opportunities for students to explore research, innovation and entrepreneurship. Students are encouraged to participate in research projects, innovation challenges, hackathons, idea competitions, IPR awareness programmes, entrepreneurship activities, incubation initiatives and industry-sponsored projects.

- Student research projects and faculty-student research collaboration.
- Innovation challenges and hackathons.
- Idea competitions and patent/IPR awareness.
- Entrepreneurship Development Cell activities.
- Innovation and incubation initiatives.
- Industry-sponsored projects and start-up awareness programmes.

14. SPORTS AND PHYSICAL WELL-BEING

Physical well-being is an essential component of holistic education. The institution provides opportunities for sports, fitness and wellness activities and encourages students to maintain a healthy balance between academic responsibilities and physical activities.

- Regular sports and fitness activities.
- Inter-department and inter-collegiate competitions.
- Indoor and outdoor sports.
- Gymnasium and wellness activities.

- Yoga and physical fitness awareness.
- Sports clubs and participation in higher-level competitions.

15. MENTAL, EMOTIONAL AND SOCIAL WELL-BEING

The institution provides a supportive environment for students to manage academic, personal and career-related challenges. Mentoring, counselling, stress management, wellness programmes, peer support and grievance mechanisms are used to promote student well-being while respecting confidentiality and dignity.

- Faculty mentoring and professional counselling support.
- Academic and career counselling.
- Stress management and wellness programmes.
- Peer support and student grievance mechanisms.
- Early identification and referral of students requiring additional support.

16. MENTOR-MENTEE SYSTEM

A structured mentor-mentee system provides continuous academic and personal guidance. Mentors monitor academic performance, attendance, learning needs and participation, support career planning, identify students requiring additional support and facilitate appropriate referrals.

- Monitor academic performance and attendance.
- Identify slow and advanced learners.
- Provide academic guidance and career planning.
- Encourage participation in co-curricular activities.
- Identify students requiring additional support.
- Maintain mentoring records and periodic reviews.

17. ACADEMIC SUPPORT FOR DIVERSE LEARNERS

The institution recognises that students enter higher education with different levels of preparedness. Appropriate academic support is therefore provided to slow learners and advanced learners through differentiated strategies.

- Bridge courses and remedial classes for students requiring support.
- Additional tutorials and peer learning.
- Additional learning materials and academic counselling.

- Advanced assignments and research opportunities for high-performing students.
- MOOCs, certifications, internships and hackathons for advanced learners.

18. CULTURAL AND CREATIVE DEVELOPMENT

Students are encouraged to explore creativity, cultural expression and communication through cultural clubs, literary activities, arts, music, debates, quizzes, heritage programmes, creative competitions and student publications. These activities develop confidence, communication, creativity, teamwork and leadership.

- Cultural, literary, music and arts clubs.
- Debates, elocution, quizzes and creative competitions.
- Heritage and cultural programmes.
- Student publications and media activities.
- Leadership and teamwork opportunities.

19. COMMUNITY ENGAGEMENT AND SOCIAL RESPONSIBILITY

The institution promotes social responsibility by encouraging students to participate in community-oriented activities through NSS, outreach programmes, environmental campaigns, health awareness, educational outreach, blood donation, tree plantation, digital literacy and social awareness programmes.

- NSS and community outreach programmes.
- Environmental and health awareness campaigns.
- Educational outreach and digital literacy programmes.
- Blood donation and tree plantation activities.
- Social awareness and community development projects.

20. ENVIRONMENTAL AND SUSTAINABILITY EDUCATION

Sustainability is integrated into holistic education through energy conservation, water conservation, waste segregation, recycling, plastic reduction, green campus initiatives, renewable energy awareness, sustainable transportation, environmental clubs and sustainability projects.

- Energy and water conservation.
- Waste segregation, recycling and reuse.
- Plastic reduction and green campus initiatives.
- Renewable energy and sustainable transportation awareness.

- Environmental clubs and sustainability projects.

21. INCLUSIVE EDUCATION AND ACCESSIBILITY

The institution strives to provide an inclusive learning environment in which students with diverse educational and social backgrounds can participate effectively. Academic assistance, counselling, scholarships, learning resources, remedial education, peer support, digital facilities and accessibility support are provided as applicable.

- Accessibility facilities and academic assistance.
- Counselling and financial support.
- Scholarships and appropriate fee support.
- Remedial education and peer support.
- Digital learning facilities and special assistance wherever required.

22. DIGITAL AND TECHNOLOGY-ENABLED LEARNING

Technology is used to provide flexible and personalised learning opportunities through smart classrooms, learning management systems, digital resources, MOOCs, online certification programmes, e-content, virtual learning resources and technology-enabled academic monitoring.

- Smart classrooms and learning management systems.
- Digital learning resources and e-content.
- MOOCs and online certification programmes.
- Virtual learning resources.
- Technology-enabled academic monitoring and feedback.

23. STUDENT CLUBS AND EXTENDED LEARNING

Student clubs provide an important platform for learning beyond the classroom. The institution promotes technical, innovation, entrepreneurship, research, literary, cultural, sports, social service, environmental and professional-society activities.

- Technical, innovation and research clubs.
- Entrepreneurship and professional society activities.
- Literary, cultural and sports clubs.
- Social service and environmental activities.
- Communication, leadership and student-led activities.

24. SUPPORT FACILITIES FOR HOLISTIC EDUCATION

- **Academic:** laboratories, library, smart classrooms and digital resources.
- **Research:** research laboratories and project facilities.
- **Innovation:** Innovation/Idea Lab and innovation activities.
- **Entrepreneurship:** entrepreneurship and incubation support.
- **Sports and fitness:** indoor/outdoor facilities and gymnasium.
- **Counselling and mentoring:** student counselling and mentor-mentee systems.
- **Career:** placement and career guidance.
- **Financial:** scholarships and financial assistance.
- **Digital:** ICT-enabled learning facilities.
- **Cultural and social:** clubs, NSS and extension activities.
- **Accessibility and health:** support for differently abled students and health/wellness awareness.

25. GOVERNANCE AND IMPLEMENTATION MECHANISM

The scheme shall be implemented through a coordinated institutional mechanism involving the Principal, IQAC, Deans, Heads of Departments, faculty mentors, institutional cells, clubs and students. IQAC shall coordinate implementation, develop monitoring indicators, collect data, review outcomes, document best practices and recommend corrective actions.

26. MONITORING AND EVALUATION

Implementation shall be monitored using quantitative and qualitative indicators such as student participation, UHV and IKS exposure, multidisciplinary learning, certifications, internships, mobility, ABC activities, sports and cultural participation, innovation, entrepreneurship, mentoring, counselling, community engagement and student satisfaction.

27. DOCUMENTATION AND EVIDENCE MANAGEMENT

Departments and institutional cells shall maintain appropriate documentary evidence, including circulars, approved course structures, timetables, attendance records, participation lists, certificates, programme reports, photographs, feedback, project reports, internship records, mobility records, mentoring records, counselling records and annual outcome reports. IQAC shall consolidate institutional evidence for quality assurance, accreditation and statutory reporting.

28. ANNUAL ACTION PLAN

An annual action plan shall be prepared covering academic orientation, UHV and IKS awareness, ABC orientation, skill development, MOOCs, certifications, industry exposure, internships, interdisciplinary projects, innovation, entrepreneurship, community engagement, sports and cultural activities, followed by outcome assessment and continuous improvement.

- Academic orientation covering UHV, IKS, ABC and flexible learning.
- Skill courses, MOOCs, certifications, industry visits and internships.
- Interdisciplinary projects, hackathons, innovation and entrepreneurship programmes.
- Community engagement, sports and cultural activities.
- Student feedback, outcome assessment, department review and IQAC review.
- Corrective action and preparation of the annual holistic education report.

29. EXPECTED OUTCOMES

The scheme is expected to develop graduates with strong disciplinary knowledge, multidisciplinary awareness, independent learning capability, critical thinking, problem-solving ability, technical and communication skills, leadership, innovation capability, ethical behaviour, social responsibility, environmental consciousness, physical fitness, emotional resilience, confidence, creativity, cultural awareness and commitment to sustainable development.

30. CONTINUOUS IMPROVEMENT

The scheme shall be implemented through the Plan–Do–Check–Act (PDCA) approach. Institutional requirements and annual targets shall be planned; UHV, IKS, multidisciplinary learning, flexibility, mobility, ABC and support initiatives shall be implemented; participation and outcomes shall be checked; and corrective actions and improvements shall be incorporated into the next annual action plan.

PDCA Framework:

- **PLAN** – Identify institutional requirements, student needs, learning gaps and annual targets.
- **DO** – Implement UHV, IKS, multidisciplinary learning, flexibility, mobility, ABC and support initiatives.
- **CHECK** – Monitor participation, outcomes, student feedback and achievement of KPIs.
- **ACT** – Identify gaps, introduce corrective measures and strengthen successful practices.

31. KEY PERFORMANCE INDICATORS

- **UHV participation:** 100% of eligible students.
- **IKS exposure:** increasing participation annually.
- **Multidisciplinary learning:** increasing student participation.
- **Student certifications:** target aligned with institutional KPI, with 70% as a suggested benchmark.
- **Internship coverage:** 100% of eligible students.
- **Student mobility:** year-on-year increase.
- **ABC registration:** 100% of eligible students, subject to applicable provisions.
- **Student mentoring:** 100% student coverage.
- **Sports and cultural participation:** continuous improvement.
- **Innovation and entrepreneurship:** annual increase.
- **Community engagement:** regular student participation.
- **Academic support:** 100% of identified students requiring support.
- **Student satisfaction:** continuous improvement.

32. RESPONSIBLE UNITS

- Principal's Office
- Internal Quality Assurance Cell (IQAC).
- Controller of Examinations
- Deans and Heads of Departments.
- Faculty Mentors and Course Coordinators.
- Training and Placement/Career Development Centre.
- Entrepreneurship Development Cell and Institution's Innovation Council.
- NSS, Sports Department and Student Clubs.
- Research and Development Cell and Library.
- Student Welfare, Scholarship and Counselling Support Systems.

33. REVIEW AND REVISION OF THE SCHEME

The scheme shall be reviewed annually by IQAC in consultation with the Principal, Academic Administration and Heads of Departments. Recommendations arising from student feedback, academic audits, stakeholder feedback, accreditation requirements and changes in regulatory frameworks shall be considered during review. Necessary modifications shall be placed before the competent institutional authority for approval.

34. CONCLUSION

Adhiyamaan College of Engineering (Autonomous), Hosur, is committed to creating an educational environment in which students are empowered to learn, explore, innovate, collaborate and contribute meaningfully to society. The scheme integrates academic excellence with Universal Human Values, Indian Knowledge System, multidisciplinary education, curriculum flexibility, academic mobility, credit-based learning and comprehensive student support.

Through this scheme, education is treated as a continuous process of knowledge acquisition, skill development, character formation, innovation, physical and emotional well-being, social responsibility and lifelong learning. The institution shall continuously strengthen these initiatives through stakeholder participation, data-driven monitoring, student feedback, academic audits and the PDCA approach.

35. APPROVAL AND REVIEW DETAILS

- **Name of Scheme:** Institutional Scheme for NEP 2020 Aligned Holistic and Multidisciplinary Education.
- **Applicable From:** Academic Year 2024–25.
- **Coordinating Unit:** Internal Quality Assurance Cell (IQAC).
- **Implementing Units:** Academic Departments and Institutional Cells/Committees.
- **Monitoring Authority:** Principal / IQAC.
- **Approval Authority:** Governing Body
- **Next Review:** Academic Year 2027–28.

Prepared by: Internal Quality Assurance Cell (IQAC)

Reviewed by: Principal

Approved by: Governing Body

Date: 10.06.2024



Principal

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