

Value Added Course

Value-added courses (VAC) for engineers, such as AI/ML, Python for Data Science, IoT, Cloud Computing, and CAD tools, are designed to bridge industry skill gaps, enhancing employability with practical training. These 30-hour or short-term programs focus on specialized tools like MERN Stack, PCB design, and Automation.

- **Design & Modelling:** [CATIA V6/V5](#) (Aircraft Design, Sketching, Part Design, Drafting).
- **Analysis & Simulation:** ANSYS (Structural & Fluid), [Hypermesh](#), and Computational Fluid Dynamics (CFD).
- **Drone & UAV Technology:** Drone Development, Design of Fixed Wing UAVs, and Quadcopter Design.
- **Aerospace Manufacturing & Materials:** Additive Manufacturing (3D Printing), Non-Destructive Testing (NDT), and Composites.
- **Aircraft Systems & Maintenance:** [Avionics Systems](#), Advanced Aircraft Maintenance, and Airworthiness.
- **Specialized Engineering:** Flight Mechanics & Propulsion, [Fatigue & Damage Tolerance](#), and Aircraft Structural Analysis.

Top Platforms for Courses

- **Coursera:** Offers courses from top institutions like ISAE-SUPAERO on flight mechanics and aerospace materials.
- **Udemy:** Features practical courses on drone technology, CAD, and aircraft design.
- **i_GET_IT (Tata Technologies):** Provides industry-specific training on design and simulation.

Graduate Aptitude Test in Engineering Examination

The GATE (Graduate Aptitude Test in Engineering) Value Added Course for Aeronautical Engineering is a comprehensive academic enrichment program designed to equip students with strong conceptual foundations, advanced analytical skills, and competitive exam readiness. Conducted nationally by premier institutions such as the Indian Institute of Science and the Indian Institutes of Technology, GATE serves as a gateway to higher education, research opportunities, and prestigious technical careers. This specialized course is structured to systematically cover all core subjects of Aeronautical Engineering including Engineering Mathematics, Aerodynamics, Flight Mechanics, Aircraft Structures, and Propulsion, with a strong emphasis on problem-solving techniques and application-based learning.

SWAYAM NPTEL

The SWAYAM – NPTEL Value Added Course for Aeronautical Engineering is a structured academic enhancement initiative aimed at empowering students with industry-relevant knowledge, advanced technical expertise, and globally recognized certification. SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) is an initiative of the Government of India that provides free online education, while National Programme on Technology Enhanced Learning (NPTEL) is jointly offered by the Indian Institutes of Technology and the Indian Institute of Science to deliver high-quality engineering courses.

This value added course enables Aeronautical Engineering students to learn directly from IIT and IISc professors through comprehensive video lectures, assignments, quizzes, and proctored certification exams. The program strengthens core areas such as Aerodynamics, Aircraft Structures, Propulsion, Flight Mechanics, Computational Fluid Dynamics (CFD), Gas Dynamics, Space Mechanics, and Avionics. By integrating theoretical knowledge with real-world case studies and numerical problem-solving, students develop deeper conceptual clarity and practical understanding beyond the regular university syllabus.