GROWTH
ENGINEERING ACADEMY

ADVANCED CERTIFICATE PROGRAM IN

NEW PRODUCT DEVELOPMENT WITH CAE & AI/ML



- DELIVERED BY **IIT KHARAGPUR FACULTY** & **INDUSTRY EXPERTS**
- **12-WEEK LIVE ONLINE** PROGRAM
- INDUSTRY-FOCUSSED CURRICULUM: **NPD · DFSS · FEA · AI/ML**
- LEARNING THROUGH **QUIZZES, PROJECTS,** AND **INDUSTRY CASE STUDIES**
- JOINT **CERTIFICATE** FROM **IIT KHARAGPUR** & **GROWTH ENGINEERING ACADEMY**

INNOVATE. DESIGN. OPTIMIZE. VALIDATE.
DELIVER WORLD-CLASS PRODUCTS.

ABOUT IIT KHARAGPUR



ABOUT GROWTH ENGINEERING ACADEMY

Growth Engineering Academy (GEA) was started in 2024 as an industry driven capability development initiative focused on structured New Product Development execution training — created to bridge the gap between academic engineering education and the practical skills industrial product design and R&D roles need.

Since inception, GEA has trained and mentored engineering students and early career professionals in NPD methodologies, helping them build industry relevant capabilities and transition into Product Design and Development roles.

ABOUT PROGRAM

The Advanced Certificate Program in New Product Development with CAE & AI/ML is a 12-week, live online program that takes engineers through the complete product development journey — from Voice of Customer to a validated, launch-ready design. It is co-delivered by faculty of the Indian Institute of Technology Kharagpur and industry practitioners from Growth Engineering Academy (GEA), combining a disciplined product development process with simulation- and data-driven design in a single, integrated curriculum.

Learners build the discipline of New Product Development and Design for Six Sigma (DFSS) — Phase-Gate governance, requirements, DFMEA, DVP&R, Design of Experiments, Design for X, APQP/PPAP, materials, manufacturing and IP — as it is practised inside OEM and Tier-1 organisations. In parallel, IIT Kharagpur faculty build finite element analysis from first principles in Python through to industry-grade ABAQUS, and then use FEA-generated datasets to train neural networks, tree-based surrogate models and genetic algorithms for design optimisation. Every concept feeds one capstone product that learners carry from concept to a validated design, backed by hands-on simulation and AI/ML optimisation work. On successful completion, learners earn a joint certificate from IIT Kharagpur and GEA.

PROGRAM AT A GLANCE

KEY HIGHLIGHTS

A practice-driven learning experience designed to bridge engineering fundamentals, industry tools and real-world product development.

IIT + INDUSTRY FACULTY

Co-delivered by IIT Kharagpur faculty and experienced industry professionals

NPD & DFSS FRAMEWORK

Industry-grade NPD, DFSS framework used by OEMs and Tier-1 organizations

LIVE SESSIONS

Live, instructor-led interactive, early morning sessions from Monday to Saturday

HANDS-ON DFSS, FEA & AI/ML

Apply DFSS tools, FEA using Python & ABAQUS, and AI/ML on real engineering datasets

CAPSTONE PROJECT

Execute a product development project from Voice of Customer to launch-ready design

GUEST LECTURES

Insights from industry leaders on emerging technologies & real-world engineering practices

INDUSTRY CASE STUDIES

Real product-development cases connecting concepts, tools with industry practice.

PRACTICAL LEARNING TOOLKIT

Study notes, ready-to-use tool templates, assignments and graded exams

JOINT CERTIFICATE

From IIT Kharagpur and Growth Engineering Academy upon successful program completion

WHO IS THIS FOR?

MECHANICAL ENGINEERING STUDENTS

in their **pre-final and final year** who want a job-ready portfolio in product development and CAE before placement season.

DESIGN & CAD ENGINEERS

with **0–5+ years of experience** who want to move up the value chain — from drafting and execution into product design, R&D and NPD roles with real ownership.

CAE & SIMULATION ENGINEERS

who want to add **DFSS rigour, design optimisation and AI/ML-driven surrogate modelling** to their analysis toolkit.

UPSKILL & CAREER SWITCHERS

working professionals from **Production, Quality, Supply Chain and Service** functions who want to upskill for their current role, or make a strategic move into Product Engineering or R&D.

IIT KHARAGPUR FACULTY



PROF. VIKRANTH RACHERLA

Professor, Department of Mechanical Engineering, IIT Kharagpur
Head, Centre for Interdisciplinary and Convergent Technologies
Chairperson, Centre of Excellence in Advanced Transportation
Ph.D., University of Pennsylvania (USA)
B.Tech, IIT Madras (Chennai, India)
At IIT Kharagpur since 2009 (~ 17 years)

Prof. Racherla applies the finite element method to real engineering problems and leads sponsored projects that take products from concept to field. He has worked on bogie design and vehicle dynamics for metro rail safety, automated machine for repairing railway turnouts, structural design and health monitoring of weighbridges, development of axle counters — alongside machine-learning-based optimization of friction modifiers to improve safety and reduce running costs in metro trains. He has authored 70+ journal papers, holds 12 patents and has successfully completed 25+ research/industry/machine development projects.

In this program, he takes learners from FEA fundamentals in Python through industry-grade ABAQUS to AI-driven design optimization — grounded throughout in real product and machine development work.

INDUSTRY EXPERT



JAYRAM DESAI

Founder, Growth Engineering Academy
Ex-General Motors · Ex-Eaton · Ex-Lam Research
M.Tech Mechanical Systems Design, IIT Kharagpur (Silver Medalist)
B.E., KJSCOE, University of Mumbai (University Rank Holder)

An IIT Kharagpur alumnus, Jayram brings 12+ years leading New Product Development and industrial Launch programs with experience across 20+ successful product launches in automotive transmission and engine subsystems, electro-mechanical systems for safety- critical hazardous environments, and high-precision semiconductor equipment. His work spans advanced structural material development for high- performance, sustainable applications, and he holds 10+ patents with multiple granted innovations.

He is a global trainer in DFSS and NPD and has helped several engineers transition into product, R&D and NPD roles. In this program he teaches NPD and DFSS exactly as they are practiced inside OEM and Tier-1 organizations.

From IIT's research labs to GEA's OEM projects — one classroom, one product.

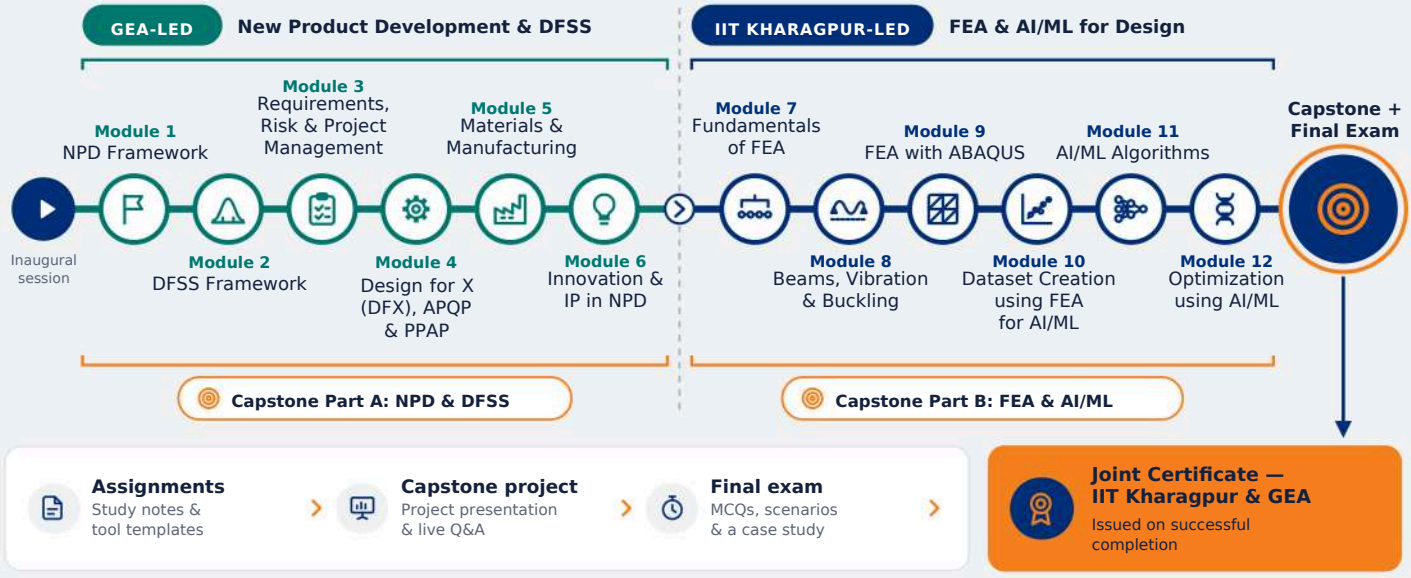
PROGRAM STRUCTURE

HOW THE PROGRAM IS DELIVERED

12 Weeks, live online	**70+** Live sessions, Monday–Saturday	**1** Capstone product development project	**1** Joint certificate

ONE INTEGRATED 12-WEEK JOURNEY

GEA's industry practitioners teach Modules 1–6 first. Once GEA lectures are complete, IIT Kharagpur faculty teach Modules 7–12. One capstone project runs across both parts and leads to a single joint certificate.



KEY LEARNING OUTCOMES

01 Take a product from Voice of Customer to a validated, launch-ready design using Phase-Gate and DFSS (IDOV).

02 Convert customer needs into CTQs, scorecards, DFMEA and DVP&R that stand up in gate reviews.

03 Build and validate FE models in Python and ABAQUS for static, modal and buckling problems.

04 Automate FEA to build datasets and train neural-net, tree-based and CatBoost surrogates.

05 Optimise designs with DOE, genetic algorithms and ML, and defend a portfolio-ready capstone.

Note: ***The curriculum is reviewed periodically to stay aligned with industry practice; successful completion is subject to the evaluation criteria set by the faculty.***

NEW PRODUCT DEVELOPMENT & DFSS

GROWTH ENGINEERING ACADEMY

GEA-LED MODULES

Industry practitioners from Growth Engineering Academy teach product development the way OEMs and Tier-1s run it — gated governance, the DFSS toolkit, launch quality, requirements and risk management, design aspects in production and IP — hands-on in Minitab and with working industry templates.

MODULE 1

NPD FRAMEWORK

How OEMs and Tier-1s take products from idea to launch through gated governance.

- NPD types: New-to-World to Incremental
- Product lifecycle & innovation S-curve
- Phase-Gate Process: Deliverables and Gate decisions
- Gate reviews: Agenda, gate decisions, common gate failure
- Agile–Phase-Gate Process: hybrid models
- Systems thinking & systems engineering overview

MODULE 2

DFSS FRAMEWORK

Six Sigma thinking for design — build quality in at the concept stage, rather than inspect it out later.

- Statistics fundamentals, probability in quality, sigma levels
- Six Sigma in Product Design, DFSS Vision
- Concept generation & selection, CTQ, scorecards, flow-down
- B/P-diagrams, DFMEA & Design controls
- Transfer functions, DOE, optimization,
- Monte Carlo & tolerance design, stack-up, CTQ prediction
- Design validation, DVP&R, Certification testing

MODULE 3

REQUIREMENTS, RISK & PROJECT MANAGEMENT

Write requirements that hold up, manage risk early, and plan the programme that ties it together.

- Requirement types, errors & traceability
- Voice of Customer, Kano model & QFD, QFD to CTQ
- Risks in NPD, risk register, risk matrix, tracking & mitigation
- NPD Planning fundamentals, WBS, RASIC & Critical Path
- Common NPD pitfalls

MODULE 4

DESIGN FOR X (DFX), APQP & PPAP

Design for manufacture, assembly, serviceability and reliability — and launch it right, first time.

- Design for manufacture and assembly
- Design for serviceability, reliability, cost
- Advanced Product Quality Planning (APQP): 5-phase structure
- Production Part Approval Process (PPAP): elements & submission levels

MODULE 5

MATERIALS & MANUFACTURING

Choose the right material and process so the design can actually be built, at cost.

- Material properties, classes & Ashby charts
- Environmental compliance: recyclability, RoHS / REACH
- Design aspects: casting, moulding, machining & sheet metal
- Effects of manufacturing process
- DFM checklist for each process

MODULE 6

INNOVATION & IP IN NPD

Generate breakthrough solutions and protect innovation with the right IP strategy.

- Innovation types & the innovation process
- Structured ideation: Crazy-8s sprint & TRIZ
- IP types: patents, trademarks, copyright & trade secrets
- Patentability criteria & the patent lifecycle
- IP ownership & licensing in OEM–supplier deals

CAPSTONE PROJECT

PART A: NPD & DFSS | PART B: FEA & AI/ML

One project, two parts. In Part A, you take a product through NPD with the applicable NPD and DFSS tools.

Product context, VOC	Requirements & CTQs	Concepts & design decisions	DFMEA & risk mitigation	Prediction & validation	Design launch readiness assessment
Built in **M1, M3**	Built in **M2, M3**	Built in **M2, M4, M5**	Built in **M2, M3**	Built in **M2, M4**	Built in **M1, M2, M3**

TOOLS & METHODS TO DEMONSTRATE, AS APPLICABLE (M1–M6)

Part A: Project presentation: + live Q&A

VOC, Kano & QFD | CTQ drill-down & PDSC | Pugh matrix | B/P-diagrams & DFMEA | DVP&R | Tolerance stack-up | Monte Carlo simulation | Optimization | Risk register | DFX | Material selection

Note: ***The curriculum is reviewed periodically to stay aligned with industry practice; successful completion is subject to the evaluation criteria set by the faculty.***

FEA METHODS & AI/ML FOR DESIGN

GROWTH ENGINEERING ACADEMY

IIT KHARAGPUR-LED MODULES

IIT Kharagpur faculty from the Department of Mechanical Engineering take you from first-principles FEA in Python to industry-grade ABAQUS, then use FEA-generated datasets to train AI/ML models for design optimization.

MODULE 7

FUNDAMENTALS OF FEA

How industry uses FEM — and how to formulate, derive and code it yourself for 1D problems.

- FEM in industry: bogie frames, trommels, cradles
- Governing equations, material models & BCs
- Weak form: mesh, elements, nodes & interpolation order
- Element matrices, global assembly & condensed equations
- 1D FEM coded in Python with AI; convergence checks

MODULE 8

BEAMS, VIBRATION & BUCKLING

Derive beam elements from scratch, then predict natural frequencies and buckling loads in Python.

- Euler–Bernoulli beams: kinematics, weak form & elements
- Timoshenko beams: shear-deformation-based elements
- Natural vibration: modes, frequencies & eigenvalues
- Mesh & boundary-condition effects on results
- Critical buckling loads & buckling-resistant design

MODULE 9

FEA WITH ABAQUS

Set up, solve and post-process structural and thermo-mechanical problems in industry-grade ABAQUS.

- ABAQUS workflow: part creation to visualization
- Beam deformation, vibration & buckling, validated vs Python
- Natural vibration & buckling of 3D beams and shells
- Thermo-mechanical line heating with elastic–plastic models
- Reading solver & output files; extracting results

MODULE 10

DATASET CREATION USING FEA FOR AI/ML

Turn FEA into a data engine: parameterize a design, run thousands of cases and analyze the results.

- Parameterized design of a beam structure
- Latin Hypercube Sampling of the design space
- Code that solves thousands of FEA scenarios
- ABAQUS macros & Python scripts for parametric runs
- Scatter plots, correlation heatmaps & regression

MODULE 11

AI/ML ALGORITHMS

Learn neural networks and tree-based algorithms, and build surrogate models for FEA with them.

- Neural networks: architectures, activation & loss functions
- Backpropagation; training, validation & test datasets
- Inverse problems with DNNs: line-heating case
- Decision tree, Random Forest & CatBoost algorithms
- FEA surrogate models built with each tree-based method

MODULE 12

OPTIMIZATION USING AI/ML

Use genetic algorithms to optimize structural designs, then apply it all in the capstone.

- GA basics: genes, parents, children & generations
- How optimization works with genetic algorithms
- Structural design optimization using GA
- AI-assisted Python coding for the optimization problem
- Leads into two capstone lectures

CAPSTONE PROJECT

PART A: NPD & DFSS | PART B: FEA & AI/ML

The same project continues in Part B: solve a design optimization problem using FEA & the applicable AI/ML methods.

FE model, validated	Parameterized design + LHS	FEA dataset at scale	AI/ML surrogate model	GA-optimized design
Built in **M7, M8, M9**	Built in **M10**	Built in **M9, M10**	Built in **M11**	Built in **M12**

TOOLS & METHODS TO DEMONSTRATE, AS APPLICABLE (M7–M12)

Part B: Project presentation: + live Q&A

FE coding in Python | ABAQUS analysis | Vibration & buckling | Latin Hypercube Sampling | Parametric FEA scripting | Correlation & regression | Deep neural networks | Decision trees | Random Forest | Cat Boost | Genetic algorithms

Note: *Lecture topics and software are under the purview of the faculty and may be updated to keep pace with advances in the field.*

FROM COURSE COMPETENCIES TO INDUSTRY ROLES

Build the competencies that employers ask and shape high-impact engineering careers.

The job profiles below highlight how skills such as DFSS, DFMEA, GD&T, FEA, AI/ML, and advanced product-development methods are directly reflected in real-world industry expectations—connecting what you learn in the program with the capabilities leading engineering organizations seek.

Job Alerts Link

Apply now

Job Title:
R&D/PRODUCT DVL ENGINEER II

ROLE OBJECTIVE

- Responsible for high-speed cable assembly product sustaining & development (such as: SFP, QSFP, QSFP-DD, CDFP, HD MiniSaS, OSFP, ACC), which are used for data communication or Hyperscale computer.
- Work closely with customers/sales/PM in getting the right and clear VOC (voice of customer), make engineering evaluation/proposal to customer.
- Maintain a System level understanding of customer application and the cable design/concept necessary for providing a solution to the customers' expectations.
- Design high-performance cables utilizing company established formulas, materials and techniques.
- Follow LEANPD Project Process to support project team from PDE perspective to complete Project (NPD or Sustaining) on time, quality and budget. Drive the development and release of products, scale-up through stage-gate reviews, ensuring milestone commitments are maintained.
- Technical support to customer, sales, PM, plant. Conduct necessary test, engineering analysis.
- Work with global manufacturing resources, procurement, and outside suppliers to meet all technical, quality, and cost objectives

QUALIFICATIONS & EXPERIENCE

- 3~5 years or more of related high speed cable assembly or high-speed connector product design experience.

Engineer I / Senior Technician I, Electromechanics / Mechanical Design

Key Responsibilities

- Design and develop LV electrical distribution products in alignment with technical specifications and market needs.
- Lead development process including design, prototyping, testing, documentation, and manufacturing readiness.
- Demonstrate knowledge of manufacturing processes and tooling for both metallic and plastic components.
- Implement Design for Manufacturing (DFM) and Design for Assembly (DFA) evaluations, recommending alternative materials and production methods.
- Apply six sigma requirements like QFD, DFMEA, P-Diagram
- Manage prototype development, build, and testing activities.
- Conduct detailed engineering analysis using design fundamentals and tools (e.g., material strength, tolerance stack-up, mechanism design).
- Utilize 3D CAD software (e.g., Pro/ENGINEER) for design feasibility studies and modeling.
- Product release in PDM softwares
- Conduct root cause analysis and implement corrective actions for design issues.
- Collaborate with cross-functional teams including manufacturing, sourcing, finance, marketing, and suppliers to ensure design validation and production readiness.

Senior SME Simulation Engineer

In This Role, Your Responsibilities Will Be:

- Work with the Global Engineering team and technical leads to perform FEA on valve components, assemblies with the goal to provide design and development recommendations. The simulation is giving guidance how to reduce weight of components and assemblies.
- Conduct linear and nonlinear structural analyses, including:
  - Static stress analysis
  - Fatigue and life assessment
  - Thermal stress analysis
  - Contact and sealing simulations
- Evaluate valve performance under high pressure, temperature, and corrosive environments.
- Support product development from concept to validation
- Conduct analyses for pressure boundary qualification and safety factors.
- Correlate simulation results with experimental data (pressure tests, burst tests, fatigue testing).
- Support root cause analysis (RCA) for field failures and non-conformances.
- Develop and maintain simulation validation methodologies

For This Role, You Will Need:

- Proven experience of using FEA tools like Ansys, Abaqus
- Develop scripts or automation to improve simulation efficiency
- Knowledge of international standards for pressure equipment, such as ASME, API, EN, ISO (PED), BS valve standards

Lead Engineer - Digital Design

· Pune Division, Maharashtra, India

Job responsibilities would include:

1. Lead Digital Design Deployment for Strategic Programs
Serve as the Technical Lead/Project Lead for Digital Design solution development and deployment across key NPI/NTI programs. Drive initiatives that enable 2x engineering design speed, reduce product development costs, and support Product Line strategic objectives.

2. Drive Advanced AI/ML Capability Development
Lead capability development programs focused on applying advanced AI and Machine Learning techniques in engineering, including Scientific Machine Learning (SciML), Generative AI, Reduced Order Modeling (ROM), and AI-enabled vertical integration of engineering models.

3. Shape the Long-Term Digital Design Technology Roadmap
Partner with business and technology leadership teams to define and execute the long-term Digital Design technology roadmap. Key focus areas include: Multi-Objective and Multi-Disciplinary Design Optimization (MDO), AI/ML and SciML-based hybrid models, Geometric Deep Learning, Generative Design, RAG and LLM-based workflows for Engineering and RFQ processes

6. Drive Technology Scouting and Contemporary Thinking
Continuously monitor and evaluate emerging advancements in AI/ML for physics-based engineering applications. Identify, assess, and facilitate adoption of relevant technologies that create competitive advantages for

7. Champion DFSS Adoption and Execution Excellence
Lead the implementation of DFSS methodologies within Digital Design initiatives for NPI programs. Mentor teams, support Green Belt reviews, and promote data-driven decision-making to improve project outcomes.

Qualifications:

Masters degree in Engineering

Relevant experience: 8+ years with Masters degree / 5+ years with PhD - Demonstrated experience in Modeling & Simulation, coupled with strong expertise in AI/ML model development and deployment. Proven ability to apply machine learning, scientific machine learning (SciML), and data-driven techniques to solve complex engineering problems and accelerate product development.

CAE Engineer

with proficient into Abaqus

with proficient into Abaqus

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- Work actively on customer models i.e. design optimization, geometry cleanup in CAD tool.
- Preparation of 2D,3D Meshing model with quality standards using Hyperworks, Abaqus or equivalent preprocessing CAE tool
- Preparation of simulation set-up e.g. defining load cases, boundary conditions etc..
- Perform simulation activity (FEA/CFD/)
- Analysis of simulation result and report generation
- Based on simulation result, advise on design or process optimization
- Participate in knowledge sharing within the team

FROM COURSE COMPETENCIES TO INDUSTRY ROLES

GROWTH ENGINEERING ACADEMY

Associate Engineer - Mechanical

What You'll Do

- Perform engineering assignments of specific engineering tasks related to product design, testing and preparation of specifications with guidance from senior engineer or team lead.
- Work on or owns a particular design module of a larger mechanical system design; Develop design concepts independently for the same. Maintain effective communications with team members and other departments.
- Adhere to design standards and procedures governing product design methods, documents/drawings and data control for the associated business group. Emphasis is on documentation, monitoring and testing.
- Participate in deployment of the ACES and other relevant standards to conform the design to requirements. Understand, implement and Adhere to Product launch processes.
- Grow multiple CAD tools expertise with proficiency gain in various design modules pertaining to typical component design requirements; Ex sheet metal, cabling, solid model, harness, etc. Provide CAD support to a specific customer using specified CAD software and data exchange and document control system.
- Prepare fully parametric designs of various components incorporating component design methodology, DFM & DFA fundamentals and various drafting standards. Perform initial quality checks to ensure created drawings/concepts meet and customer standards / requirements.
- Works on design concepts ideation & quick block modeling to create those; Recommends technical changes or modifications as needed.
- Apply appropriate GD&T and tolerance stack-up to come up with detailed designs in accordance

Engineer, Product Engineering

- Lead multiple small product development projects and contribute to larger product development programs to deliver compliant and innovative Fluid Conveyance solutions.
- Support internal departments, suppliers, and customers by providing technical support, supporting prototype development, testing solutions, and ensuring products meet or exceed customer requirements.
- Use computer-assisted engineering and design software, prediction models, and Six Sigma/DFSS tools (PDSC, P-Diagram, DFMEA, Risk Management, DVPR) to improve product performance, quality, and design predictability while ensuring designs meet and customer standards.
- Continuously learn, apply innovative product concepts, protect IP through patents or trade secrets, and share knowledge to support continuous improvement and organizational objectives.
- Collaborate with customers, cross-functional teams, and stakeholders by maintaining effective verbal and written communication throughout product development and introduction.

Design Engineer - Mechanical

Bengaluru, Karnataka, India

Roles and Responsibilities

- Design, develop, validate, and support mechanical components, assemblies, and subsystems for new product development and sustaining engineering initiatives.
- Participate in all phases of the product development lifecycle, including concept development, architecture, detailed design, prototyping, verification, validation, manufacturing transfer, and post-launch support.
- Perform engineering analyses, design calculations, tolerance stack-up analysis, and technical evaluations to support design decisions.
- Develop and review engineering drawings, specifications, BOMs, and technical documentation in accordance with established engineering standards.
- Plan and execute component and subsystem Verification & Validation (V&V) activities to demonstrate product performance, reliability, and regulatory compliance.
- Support supplier development, component qualification, manufacturing readiness, and engineering change activities.
- Participate in technical reviews, root cause investigations, and continuous improvement initiatives.

Required Qualifications

- Bachelor's degree in Mechanical Engineering. Master's degree in Mechanical Engineering, Mechanical Design, Manufacturing Engineering, or Tool Design is preferred.
- Minimum of 3 years of experience in mechanical design, product development, and New Product Introduction (NPI)
- Experience designing and developing mechanical components and assemblies from concept through production

Engineer I/ II Product Development

Apply

Careers

Location: Pune, India

If you are a product development engineering professional seeking an opportunity to grow, in Pune, India has an exciting opportunity for you. We are looking for a motivated Engineer II – Product Development. Advanced Technology to support advanced technology and new product development programs. In this role, you will contribute to design engineering, simulation-driven development, and project engineering activities for next-generation HVAC/R and compressor technologies. You will work closely with global engineering teams to develop design concepts, perform analysis, support prototype validation, and help mature technologies from concept through product development.

As an Engineer - Product Development, You Will:

- Support advanced technology and NPD projects, including concept development, design execution, prototype support, and technical documentation.
- Develop 3D models, assemblies, and 2D drawings using CAD tools such as NX, Creo, SolidWorks, or equivalent.
- Perform engineering calculations and design analysis to support component and system-level development.
- Conduct FEA simulations for structural analysis
- Conduct GT multi-physics simulations for performance and design optimization.
- Correlate simulation results with test data and support design improvements.
- Support project engineering activities including schedule tracking, action item follow-up, risk identification, and milestone reporting.
- Coordinate with cross-functional teams including Project Engineering, Reliability, Quality, Manufacturing, Procurement, and global design teams.
- Participate in design reviews, technical risk reviews, TRL reviews, and product development gate reviews.
- Support continuous improvement, engineering standardization, and next-generation design technology development.

Required Education, Experience & Skills:

- Bachelor's degree in Mechanical Engineering or related field.
- 1 –3+ years of experience in design engineering, product development, simulation, or related engineering

Design Engineer - Motors EV

Job Purpose

- Design and develop mechanical components and assemblies for traction motors used in electric three wheelers and advanced three wheeler vehicle.
- Support new product development, cost optimization, quality improvement, and localization activities.
- Ensure robust mechanical design through CAE inputs, DFMEA, GD&T, tolerance stack-up analysis, and validation testing.
- Coordinate with cross-functional teams to achieve project targets related to performance, cost, quality, and timelines.
- Drive continuous improvement in motor reliability, manufacturability, and serviceability.

Key Responsibilities

- Design motor mechanical parts such as housing, end covers, shaft, rotor stack interfaces, cooling features, mounting structures, seals, and fastening systems.
- Create and release 3D models, 2D drawings, BOMs, and engineering documentation using CAD tools.
- Perform design calculations for structural integrity, fits and tolerances, bearing selection, sealing systems, and thermal considerations.
- Prepare and review DFMEA, DVP&R, control plans, and engineering specifications.
- Analyze test failures and implement corrective actions through root cause analysis.
- Ensure compliance with design standards and engineering best practices.
- Drive value engineering and cost reduction projects.
- Work with suppliers for component development and localization initiatives.
- Coordinate with Electrical Design, CAE, Testing, PED, Quality, and CP.

FEA Engineer, Ahmedabad GUJ

Sealing Solutions · Greater Ahmedabad Area

Sista ansökningsdag 2026-10-31 **Plats:** IND - Ahmedabad

About The Role

We are seeking an experienced **FEA Engineer** with strong expertise in **Abaqus**, non-linear finite element analysis, and engineering calculations. The ideal candidate will be responsible for conducting detailed simulations, validating designs through analytical calculations, and supporting product development through advanced structural analysis.

Key Responsibilities

- Perform linear and non-linear FEA simulations using Abaqus.
- Conduct engineering calculations to validate design concepts and simulation results.
- Develop and analyze finite element models for mechanical and structural components.
- Evaluate stress, strain, deformation, contact behavior, fatigue, and durability performance.
- Interpret simulation results and provide design recommendations.
- Prepare detailed technical reports and documentation.
- Collaborate with cross-functional teams to optimize product performance and reliability.
- Support verification, validation, and continuous improvement activities.

Required Skills & Experience

- Minimum 5 years of experience in FEA and engineering analysis.
- At least 2-3 years of hands-on experience with Abaqus.

For more job profiles visit here.

SAMPLE CERTIFICATE

On successful completion of the assignments, capstone project and final examination, learners will earn a certificate jointly issued by IIT Kharagpur and Growth Engineering Academy, along with a detailed Evaluation Report reflecting their performance across the program.

Together, the certificate and evaluation report provide a comprehensive record of achievement strengthening the learner's CV, LinkedIn profile and professional credentials.



Indian Institute of Technology Kharagpur

CONTINUING EDUCATION / OUTREACH

IN COLLABORATION WITH

Growth Engineering Academy

GROWTH ENGINEERING ACADEMY

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

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Certificate of Completion

This is to certify that

has successfully completed

Advanced Certificate Program in
New Product Development with CAE & AI/ML

During: Dec 2026 - Feb 2027

Registration No:_____

Prof. Vikranth Racherla
Course Co-ordinator
IIT Kharagpur

Dean Outreach
IIT Kharagpur

Jayram Desai
Course Co-ordinator and
Founder, Growth Engineering Academy

Scan to verify

Sample copy shown for illustration. The certificate is issued only upon successful completion of the program.

REGISTER FOR THE PROGRAM

ELIGIBILITY CRITERIA

EDUCATION
Bachelor's degree (B.E./B.Tech) in Mechanical or allied engineering disciplines

EXPERIENCE
Open to pre-final year and final year students, and graduates with 0–5+ years of work experience

NO CODING EXP
No prior coding experience required — Python is taught hands-on from scratch

APPLICATION PROCESS

Getting in takes three simple steps. Applications are reviewed on a rolling basis, so the sooner you apply, the sooner you hear back.

1

STEP 1
Apply
Share your details and background through the application form.

2

STEP 2
Profile Review
The GEA team reviews your details against the eligibility criteria.

3

STEP 3
Enrol
Pay the program fee to confirm your seat in the cohort.



FEE STRUCTURE

PROGRAM FEE

ADVANCED CERTIFICATE PROGRAM IN

NEW PRODUCT DEVELOPMENT WITH CAE & AI/ML

₹30,000 + 18% GST

▶ Register Early to Secure Your Seat

Joint certificate from IIT Kharagpur & Growth Engineering Academy

READY TO BUILD REAL PRODUCTS?

APPLY NOW

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Scan to apply



INNOVATE. DESIGN. OPTIMIZE. VALIDATE.

DELIVER WORLD-CLASS PRODUCTS.