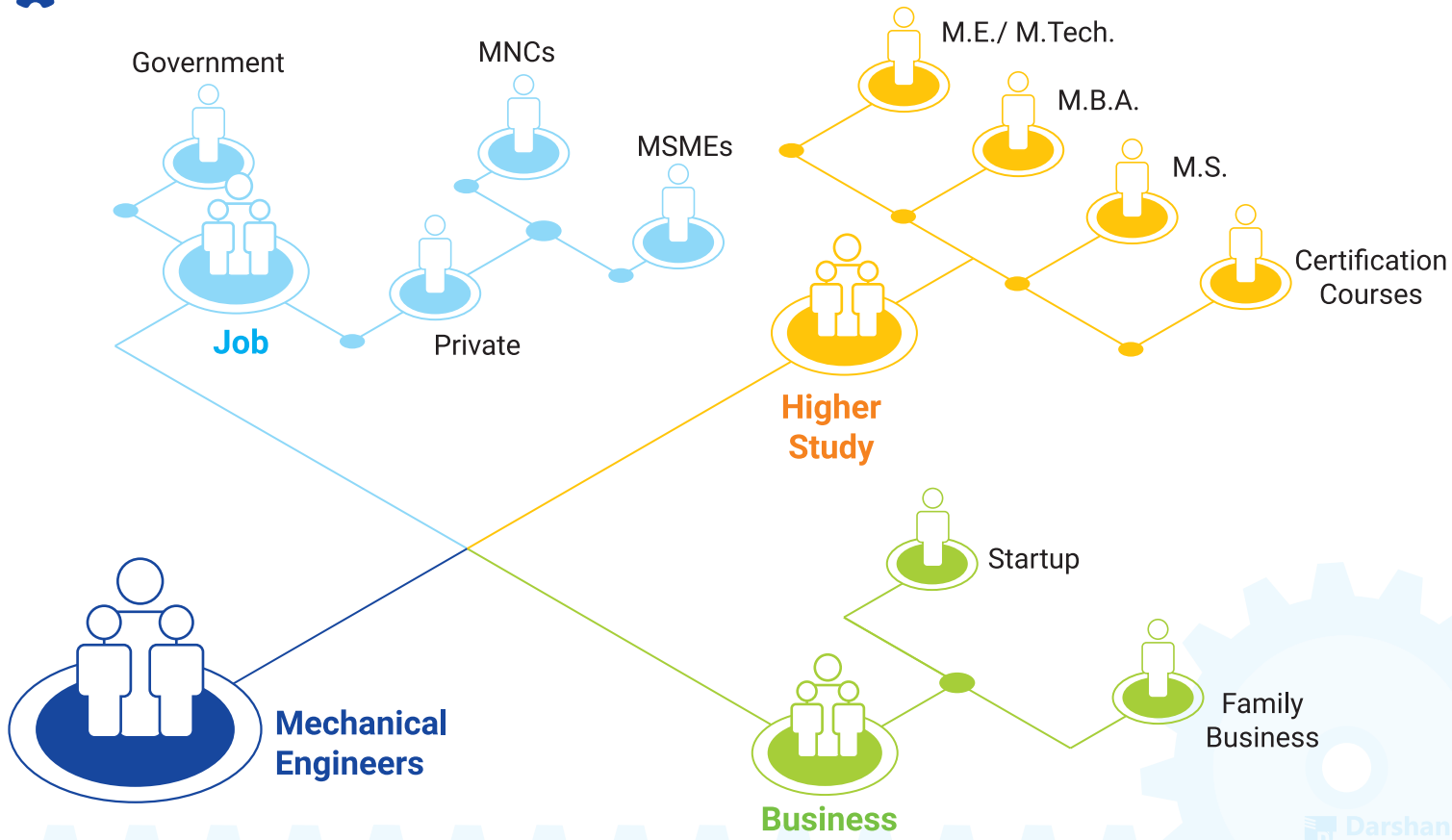
Career after Mechanical Engineering





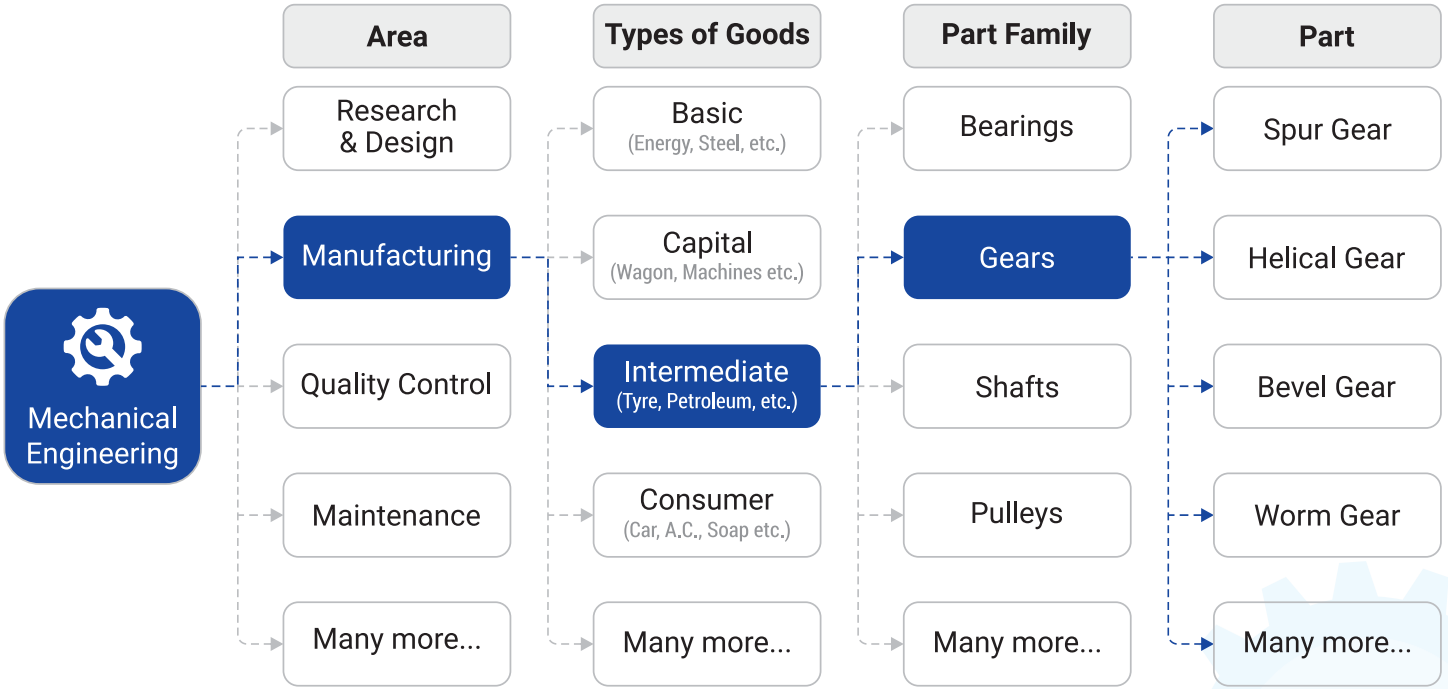


Career Opportunities



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Broadest Engineering Discipline



- Manufacturing is the process of making various goods (every product which satisfies human needs) by hand or machine.
- E.g. a car is made of around 30,000 parts which includes gears, shafts, couplings, pulleys, pistons, fasteners, etc.
- The design and manufacturing technique of each part is different, hence many mechanical engineers of different domains are required.

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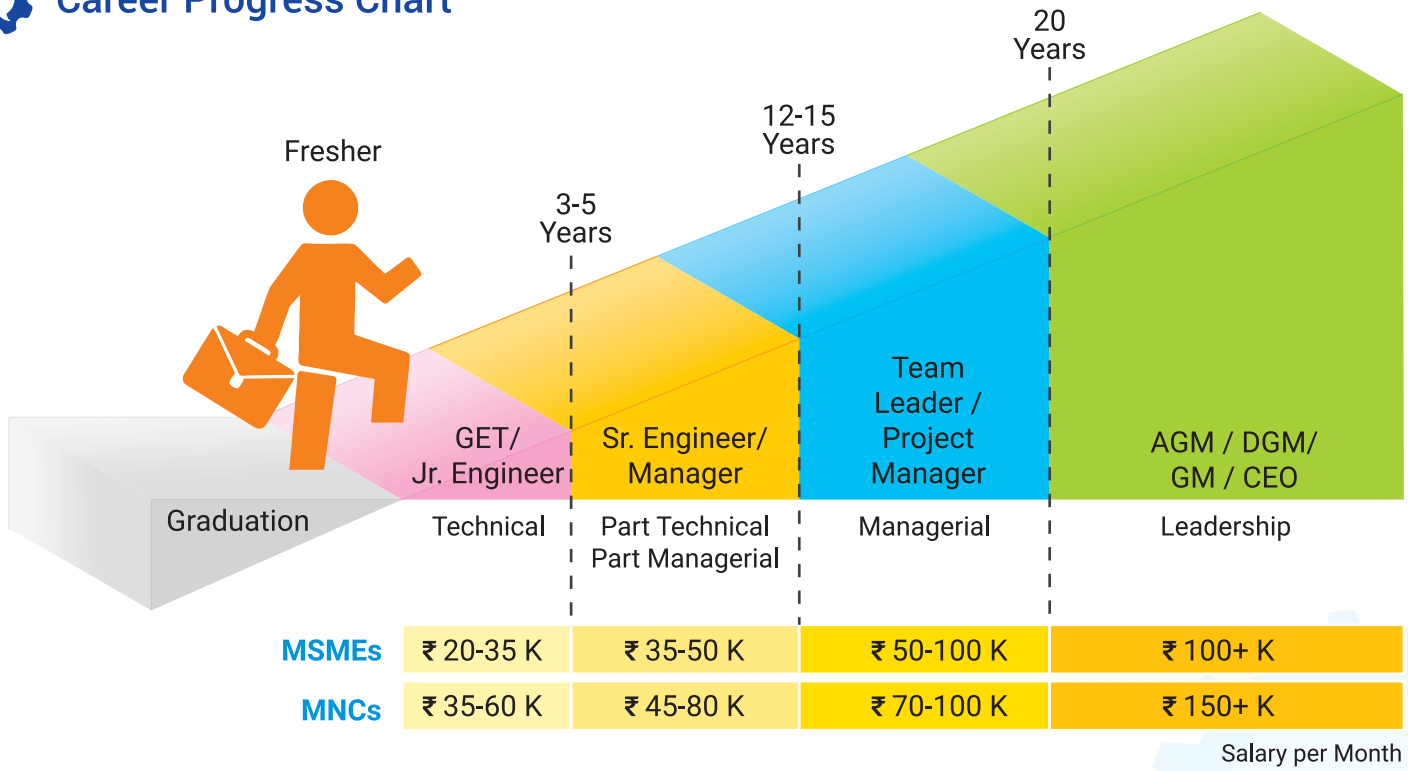
Work Areas

- Product Design & Analysis
- Automobile
- Energy
- Pharma
- Manufacturing
- Aviation
- Textile
- Power Plant
- Industrial Automation
- Agriculture
- Heavy Engineering
- Process Industries
- IoT & Industry 4.0
- Construction
- HVAC
- Railway
- Drone Technology
- CAD/CAM
- Marine
- R & D
- Robotics & Mechatronics
- Defence
- Metal & Mining
- IT Industries
- Electric Vehicle
- Engineering Service
- Oil & Gas
- FMCG

- Mechanical Engineering is the most diverse & versatile field of engineering.
- After graduation, students have many options to select the work area as per their interest.

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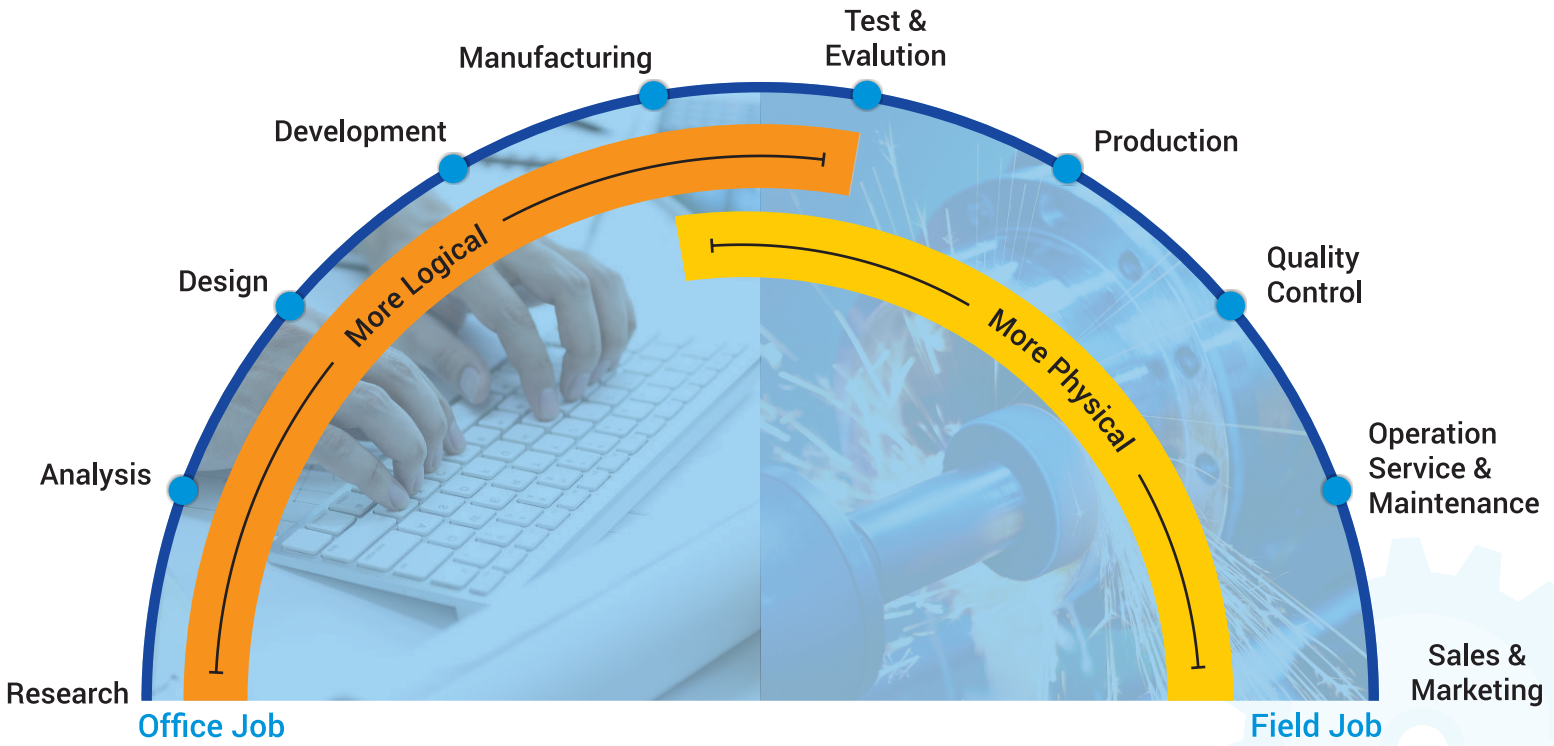
Career Progress Chart



Disclaimer: The salary depends on company, skill of a candidate, business environment, etc....

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Job Roles



- Students can start their career by choosing any one of the job roles as per his interest and skill sets.

Skill Set

Research & Analysis

- Strong Fundamentals
- Engineering Drawing
- Statistical & Analytical Skills
- CAD / CAE Softwares
- Critical Thinking

Design & Development

- Engineering Drawing
- Geometric Dimensioning & Tolerances (GD&T)
- Types of Materials
- CAD Softwares
- MS Office

Manufacturing & Production

- Engineering Drawing Reading
- Manufacturing Processes
- Types of Materials
- Measuring Techniques
- MS Office
- Good Physical Strength



Operation, Service & Maintenance

- Knowledge of Joints & Welding Techniques
- Types of Materials
- Various Tools
- Engineering Drawing
- MS Office
- Good Physical Strength

Sales & Marketing

- Good Communication Skills
- Leadership & Etiquettes
- MS Office
- Good Physical Strength

Quality Control

- Engineering Drawing Reading
- Familiar with Materials
- Measuring Techniques
- NDT Testing
- MS Office

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Major MNC Recruiters in India

OUT OF GUJARAT	• 3M India Ltd. • Alstom • ANSYS • Ashok Leyland	• Athena India • Batliboi • Blue Star • Caterpiller	• Daimler • General Electric • General Motors • Havells	• JK Tyre • John Deere • M&M • OSRAM	• Shell • Tata Steel • The Sanmar Group • Triveni Engineering
GUJARAT	• ABB • Apollo Tyres • Bombardier	• Bosch Rexroth • Elecon • Godrej	• Harsha Engineers • Ingersoll Rand • L&T	• Linde • Maruti Suzuki • Schneider	• Siemens • Tata Motors • Thermax
SAURASHTRA & KUTCH	• Adani Power • Asia Motor Works	• Grasim • Nirma	• Nyara Energy • Reliance	• Suzlon • Tata Chemical	• Tata Power • Welspun

Mode of Recruitment	: On Campus or Apply directly through company website
Eligibility	: B.E./B.Tech. in Mechanical Engineering with 60% aggregate from recognized university (without backlog is preferable)
Salary	: ₹ 35,000 to 60,000 per month
Selection Procedure	: Written Test + Interview (1-2 years of experience in MSME may help students to get selected in MNCs)

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Major Recruiters in Gujarat

Aarti Industries	Berger Paints	Kirloskar	Sanghi Cement
ABC Bearings	Bharat Forge	Mamata Machinery	SKF Bearings
Adani Port	Cairn India	Man Turbo	Sun Pharma
Aerotherm Products	Dresser Rand	Mazda	TBEA Energy
Amul Dairy	Electrotherm	Omega Elevators	TEMA India
Anup Engineering	FAG Bearing	Parle Products	Torrent Pharma
Anupam Industries	Ferromatik Milacron	Patel Airtemp	Torrent Power
Apar Industries	IDMC	Prashant Industries	Transformer & Rectifier
Arvind	Inductotherm	Ratnamani Metals	United Phosphorous
Asahi India Glass	Inox Wind	Raymond	Vadilal Industries
Banco Products	Jaivel Aerospace	Rhino Machines	Voltamp Transformers
Bayer Cropscience	John Energy	Rockman Industries	Windsor Machines

Mode of Recruitment	: On/Off Campus or Apply directly through company website
Eligibility	: B.E./B.Tech. in Mechanical Engineering from recognized university
Salary	: ₹ 20,000 to 35,000 per month
Selection Procedure	: Written Test + Interview

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Major Recruiters in Rajkot

Investment Casting	Hi-CON Investment Casting
	Intricast
	Nova Technocast
	Prevail Casting
	Shilpan Steelcast
Sand Casting	Gautam Technocast
	Gujarat Intrux
	Hi-Mac Casting
	Metflow Cast
	Prashant Casting
Forging	Bhavani Forge
	Echjay
	Ganga Forging
	Ravi Technoforge
	Sun Forge
Machine Tools	Gujarat Lathe
	Jyoti CNC
	Macpower
	Rajoo Engineers
	Singhal Power Press
Pump & Motor	Angel Pumps & Motors
	Doctor Pump
	Falcon Pump
	Impetus Turnomatics
	Silver Pumps & Motors
Auto Parts	Amul Industries
	Atul Auto
	Bhavani Industries
	Esteem Auto
	Kishan Auto
Agriculture	Captain Tractors
	Dharti Agro
	Khedut Agro
	Kishan Agro
	Tirth Agro Pvt. Ltd.
Gear	Mahindra Gears
	Parajiya Gears
	Rupkala Gears
	Sudarshan Gears
	Synnova Gears
Bearing	Galaxy Bearing
	Orbit Bearing
	Rolex Rings
	Turbo Bearing
	Vishal Bearing

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Major Recruiters in Rajkot

Renewable	Delta Solar Heater
	J J PV Solar
	Radhe Energy
	Redren Solar Water Heater
	Uratom Solar
Calibration	Absolute Instruments
	Creative Calibration
	German Calibration
	Krishna Instruments
	Phoenix Calibration
Surgical Parts	Nebula Surgical
	Samay Surgical
	Sky Surgicals
	Vishal Surgitech
	Western Surgical
Diesel Engine	Advanced Diesel
	Gujarat Forging
	P.M. Diesel
	Standard Agro
	Topland
Miscellaneous	EPP Composites
	G. M. Valve
	Hi-bond Cement
	Patel Brass Works
	Ravi Metal Treatment

19,65,000+
MSMEs in Gujarat

1,95,000+
MSMEs in Rajkot

Mode of Recruitment	: On/Off Campus or Apply directly through company website
Eligibility	: B.E./B.Tech. in Mechanical Engineering from recognized university
Salary	: ₹ 18,000 to 25,000 per month
Selection Procedure	: Personal Interview (Few companies are conducting written exam)

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Central Government & PSUs Jobs (GATE Based)

Bharat Earth Movers Limited (BEML)	National Aluminium Company Limited (NALCO)
Bharat Electronics Limited (BEL)	National Fertilizers Limited (NFL)
Bharat Heavy Electricals Limited (BHEL)	National Hydroelectric Power Corporation (NHPC)
Bharat Petroleum Corporation Limited (BPCL)	National Mineral Development Corporation (NMDC)
Coal India Limited (CIL)	National Thermal Power Corporation (NTPC)
Engineers India Limited (EIL)	NLC India Limited
Gas Authority of India Limited (GAIL)	Nuclear Power Corporation of India Limited (NPCIL)
Hindustan Aeronautics Limited (HAL)	Oil and Natural Gas Corporation Limited (ONGC)
Hindustan Petroleum Corporation Limited (HPCL)	Oil India Limited (OIL)
Indian Oil Corporation Limited (IOCL)	Rail India Technical and Economic Service (RITES)
Institute for Plasma Research (IPR)	Rashtriya Ispat Nigam Ltd (RINL)
Mahanagar Gas Limited (MGL)	Steel Authority of India Limited (SAIL)
Mishra Dhatu Nigam Limited (MIDHANI)	Visakhapatnam Steel Plant (VIZAG)

Eligibility	: B.E./B.Tech. in Mechanical Engineering with 60% aggregate from recognized university
Salary	: ₹ 65,000 to 1,00,000 per month (after probation)
Selection Procedure	: Based on GATE score students are shortlisted for interview (Few PSUs arranging Group Discussion prior to interview)

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Central Government Jobs (Non-GATE Based)

Bhabha Atomic Research Centre (BARC)	Indian Space Research Organization (ISRO)
Defense Research and Development Organization (DRDO)	Indira Gandhi Centre for Atomic Research (IGCAR)
Cochin Shipyard Limited (CSL)	Railway Recruitment Board (RRB)

Eligibility	: B.E./B.Tech. in Mechanical Engineering with 60% from recognized university
Salary	: ₹ 55,000 to 80,000 per month (after probation)
Selection Procedure	: Written Test + Personal Interview

Central Government Jobs in Indian Armed Forces (For Engineers only)

Indian Air Force	Indian Army	Indian Navy
• Combined Defence Services Examination (CDSE) • NCC Special Entry • Air Force Common Admission Test (AFCAT) • Ground Duty (Technical) Branches	• University Entry Scheme (UES) • Technical Graduate Course (TGC) • Short Service Commission (SSC) • Army Educational Corps (AEC)	• Union Public Service Commission (UPSC) • Direct Entry Permanent Commission /Short Service Commission • University Entry Scheme (UES)
www.careerindianairforce.cdac.in	www.joinindianarmy.nic.in	www.joinindiannavy.gov.in

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State Government & State PSUs Jobs

Gujarat Alkalies and Chemicals Ltd. (GACL)	Gujarat Narmada Valley Fertilizers & Chem. Ltd. (GNFC)
Gujarat Energy Research & Management Institute (GERMI)	Gujarat State Civil Supplies Corporation Ltd. (GSCSL)
Gujarat Education Service (Lecturer in Govt. Polytechnic)	Gujarat State Electricity Corporation Ltd. (GSECL)
Gujarat Energy Transmission Corporation Ltd. (GETCO)	Gujarat State Fertilizers & Chemicals Ltd. (GSFC)
Gujarat Gas Company Ltd. (GGCL)	Gujarat Water Resources Development Corp. (GWRDC)
Gujarat Heavy Chemicals Ltd. (GHCL)	Industrial Training Institute (ITI)
Gujarat Industrial Development Corporation (GIDC)	Labour and Employment Department
Gujarat Industries Power Company Ltd. (GIPCL)	Municipal Corporations
Gujarat Maritime Board (GMB)	Narmada & Water Resources, Water Supply & Kalpsar
Gujarat Metro Rail Corporation Ltd. (GMRC)	Regional Transport Office (RTO)
Gujarat Mineral Development Corporation Ltd. (GMDC)	Roads & Buildings Department (R&B)

Eligibility	: B.E./B.Tech. in Mechanical Engineering from recognized university
Salary	: ₹ 20,000 to 65,000 per month
Selection Procedure	: Written Test + Personal Interview

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Softwares

BASIC TOOLS	SOLID MODELING	HEAT EXCHANGER DESIGN	MANUFACTURING
• AutoCAD	• Creo Parametric	• HTRI	• NX CAM
• MS Office	• SolidWorks	• Aspen	• DelCAM
• Python	• Solid Edge	• Hexact	• MasterCAM
ANALYSIS	**PIPING DESIGN**	**CASTING SIMULATIONS**	**STATISTICAL / LOGICAL**
• ANSYS	• SP3D	• FLOW-3D	• MATLAB
• Abaqus	• CAESAR-2	• AutoCAST	• Minitab
• HyperWorks	• Smart Plant Review (SPR)	• MAGMASoft	• Mathcad

Online Learning Platforms

coursera — www.coursera.org

edX — www.edx.org

HARVARD UNIVERSITY — online-learning.harvard.edu

swayam / NPTEL — nptel.ac.in

MIT OCW — ocw.mit.edu

udemy — www.udemy.com

Darshan UNIVERSITY



M.E./M.Tech.

- Admission through GATE @ IITs, NITs, IIITs, IISc, etc.
- Admission through PGCET @ Govt., GIA & SFI's of Gujarat.
- Admission through entrance exam @ Private Universities like Nirma, PDPU, etc.

M.B.A.

- Admission through CAT, GMAT, CMAT @ IIMs and different business schools like XLRI - Xavier School of Management, DMS - IIT Delhi, SJMSOM - IIT Bombay, MDI Gurgaon, NITIE Mumbai, etc.

M.S.

- Admission through GRE, TOEFL, IELTS @ Foreign Universities.
- Admission through GATE @ IISc and some other Indian Universities like Delhi University, University of Calcutta, etc.

Certification Courses

- One year professional certification courses like Piping Design, Marine Engineering, Welding Technology, Thermal Power Plant Engineering, CAD/CAE Software, etc.

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M.E./ M.Tech. through GATE

- **Eligibility:** Final year student or Graduate in Engineering/Technology.
- GATE is mandatory to get financial assistance in M.Tech./Ph.D.
- The exam is usually conducted on 2nd Sunday of February.
- **IITs:** 800+ Seats with 50+ Specialization Courses. **NITs:** 1500+ Seats with 60+ Specialization Courses.
- **Major Areas of Specialization:**

Aerospace
Advanced Manufacturing
Automobile
CAD/CAM
Energy Systems
Industrial Engineering
Machine Design
Material Science
Metrology
Production
Thermal
Welding Technology

M.S. (Foreign Study)

DECISION MATRIX - Where to Study?

Country	Admission Requirements	Fees/Year	Work Visa	PR Chances
Germany	IELTS & German Language	₹60,000 to ₹1,00,000	18 months job search visa followed by EU Blue Card	Moderate
US	IELTS, TOEFL, GRE/GMAT IELTS - 6.5 to 7 Bands TOEFL : 90 or above	₹14,00,000 & onwards	1 year OPT + 2 years extra for STEM students	Less
Canada	IELTS / TOEFL IELTS: 6.5 - 7 Bands TOEFL : 90 or above	₹14,00,000 & onwards	1 year course = 1 year work visa, 2 or more years course = 3 years work visa	High
Australia	IELTS, TOEFL or PTE IELTS - 6.5 to 7 Bands	₹14,00,000 & onwards	2 years work visa	High

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Design

- Product Design, Die Design, Machine Tool Design, etc.

Manufacturing

- Foundry, Forging, Conventional & Non-Conventional Machining, Sheet Metal Forming, Heat Treatment, Plastics and many more.

Testing

- Material Testing, Calibration, Inspection like Hydrostatic, Welding.

Consultancy

- CAD, CAE (FEA, CFD, etc.), Productivity & Quality Improvement, Maintenance, Project Management, 3D Printing and Scanning, AR/VR etc.

Trading

- Product Retailers and Wholesalers.

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Government Schemes & Programs

Capital Investment Subsidy

10% up to ₹ 10 lakh of loan in municipal areas and 20% up to ₹ 30 lakh of loan amount in other areas. (On capital investment up to ₹ 10 crore)

Interest Subsidy

5% up to ₹ 25 lakh in municipal areas per annum for a period of 5 years & 7% up to ₹ 35 lakh in other areas per annum for 7 years.

Patent Registration

75% up to ₹ 25 lakh for obtaining patent registration.

Startups

₹ 10 lakh for raw material & components. ₹ 10,000/month to innovators. Marketing assistance up to ₹ 10 lakh after commercialization.

Reimbursement of CGTMSE fees

100% reimbursement of fees to women, SC/ST, physically challenged entrepreneurs for service fees for availing collateral free loans up to ₹ 2 Crore.

Technology Acquisition

65% assistance of up to ₹ 50 lakh including royalty payment for 1st two years.

Rent Assistance

65% of rent paid (reimbursement of Rent paid) by the enterprise with maximum limit of Rs1,00,000/- (one lakh) per annum for five years.

Market Development

Exhibition through associations / federation / chamber. 60% of rent up to ₹ 4 lakh for International/National fairs outside Gujarat.

Saving in Water or Energy

75% cost of energy or water audit upto ₹ 50,000.

Quality Certification

65% up to ₹ 1 lakh on ERP, 50% up to ₹ 50,000 for obtaining ISO including consulting fees, 50% up to ₹ 10 lakh on ISI / WHO GMP / Hallmark Certifications.

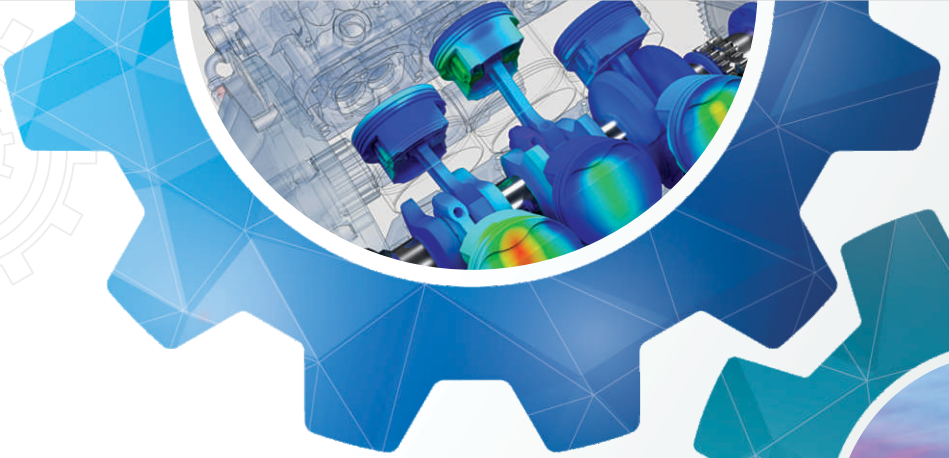
Power Connection Assistance

Assistance in service line & power connection charges: 35% of charges up to ₹ 5 lakh.

R & D

60% of project cost for machinery & equipment, 50% up to ₹ 50 lakh of project research to AICTE approved and R&D institutions / colleges.

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