

Job Notification Form, IIT Delhi

Company Overview

Name: Caterpillar India Private Limited

Website: <https://www.caterpillar.com/>

Company Type: Core (Technical)

Description: For nearly 90 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. Customers turn to Caterpillar to help them develop infrastructure, energy and natural resource assets. Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. A lasting legacy of talented and committed employees give Caterpillar its competitive edge. It is our team that has allowed this company to accomplish great things. From the construction of the Hoover Dam, to facilitating communication for the Apollo moon-landing mission, to earthquake relief in Indonesia, our employees have never failed to give customers enduring results through superior service and innovation.

Job Details

Designation: Senior Associate Engineer (PhD)

Type: Core (Technical)

Place of Posting: Chennai, Bangalore

Job Details: For nearly 90 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. Customers turn to Caterpillar to help them develop infrastructure, energy and natural resource assets. Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. A lasting legacy of talented and committed employees give Caterpillar its competitive edge. It is our team that has allowed this company to accomplish great things. From the construction of the Hoover Dam, to facilitating communication for the Apollo moon-landing mission, to earthquake relief in Indonesia, our employees have never failed to give customers enduring results through superior service and innovation.

1. EE_APP

Electrification and Hybrid Power Systems: Simulation and Controls Development
As an Associate Engineer, you will have the opportunity to learn from and contribute in a collaborative team environment in the area of design of new global products and processes. This group enables electrification of Caterpillar products by working on identifying power sources (Battery, fuel cells, PV) to integrating which involves Control's system development for various power conversion systems such as Inverters, Converters, Chargers, etc. In this entry-level engineering position, you will build your technical expertise while learning product development through practical application and staying abreast of innovative technology. You will also build your professional network, engage with peers and receive guidance from mentors in the field.

Responsibilities:

In this role, you will also deepen your knowledge base of Caterpillar's products,

technologies, processes, services and systems, which you will use to:

- Modelling of renewables and battery energy storage system (BESS) with power electronics converters and their controls.
- Performing power system studies with emphasis on dynamic and steady-state analysis using PSS®E, PSCAD, PowerFactory.
- Simulate and perform grid connection studies to evaluate the performance of renewables, BESS and their controls.
- Evaluate Controller requirements, identify subsystems and develop strategies for Power Conversion Systems.
- Evaluate new products, processes, or systems.
- Communicate results to customers, suppliers, team members, and other business units.
- Contribute to the design of new products and processes.
- Perform product and process maintenance.

Requirements:

- Good background in Power Systems and Power Electronics.
- Understanding of power conversion systems.
- Proficient in simulating and evaluating power converter systems for power system studies.
- Understanding of open & closed loop control system, controller requirements and calibration.
- Knowledge of Digsilent PowerFactory, PSCAD/EMTDC, PSS®E and other Power System modelling Software's.
- Ability to develop user defined dynamic model in PSS®E and/or DSL scripting in PowerFactory.
- Knowledge of MATLAB/Simulink.

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- Understanding of converter and inverter controls, distribution systems and microgrids.
- Excellent Verbal and Written Communication Skills.
- Ability to work in teams as well as independently.

Desirable:

- Knowledge of programming language such as Python and FORTRAN, C++ coding is preferable.
- Knowledge of grid integration standards such as IEEE/UL.
- Knowledge of Hardware in loop (HIL) simulations using OPAL-RT and/or DSPACE is preferable.

2. ME_Core P

Mechanical Design

As an Associate Engineer, you will have the opportunity to learn from and contribute in a collaborative team environment in the area of design of new global products and processes. In this entry-level engineering position, you will build your technical expertise while learning product development through practical application and staying abreast of innovative technology. You will also build your professional network, engage with peers and receive guidance from mentors in the field.

Responsibilities:

In this role, you will also deepen your knowledge base of Caterpillar's products, technologies, processes, services and systems, which you will use to:

- Design & Development of Core engine components, heavy & Light Fabrication, Cooling system components, Driveline components, Genset accessories
- Validation - FEA Analysis, Test Data Analysis, Validation test planning
- Communicate results to customers, suppliers, team members, and other business units
- Contribute to the design of new products and processes
- Perform product and process maintenance

Requirements:

- Strong in Mechanical Engineering basics in the area of Applied Mechanics, Machine Design, FEA, Mechanical Vibration
- Tools: Pro/E Creo, ANSYS, ABQUS, HyperMesh, SolidWorks.
- Good understanding of IC Engine fundamentals and working principle.
- Fatigue and Vibration concepts related to various Engine / Machine components and systems
- Basic knowledge of any Dynamic / Vibration Simulation software.
- Demonstrated excellent judgement and decision-making ability, demonstrated ability to independently solve problems

- Ability to communicate technical information effectively with team members and others in the work groups
- Desirable:
- Working knowledge of MATLAB, Advance MS Excel with programming

3. ME_APP

Electrification and Hybrid Power Systems: Mechanical Design

Description

For nearly 90 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. Customers turn to Caterpillar to help them develop infrastructure, energy and natural resource assets. Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. A lasting legacy of talented and committed employees give Caterpillar its competitive edge. It is our team that has allowed this company to accomplish great things. From the construction of the Hoover Dam, to facilitating communication for the Apollo moon-landing mission, to earthquake relief in Indonesia, our employees have never failed to give customers enduring results through superior service and innovation.

As an Associate Engineer, you will have the opportunity to learn from and contribute in a collaborative team environment in the area of design of new global products and processes. This group enables electrification of Caterpillar products by working on identifying power sources (Battery, fuel cells, PV) to integrating with applications. This position will involve Mechanical development of Battery Systems, Energy Storage Containers, Bi-Directional Power Inverters, Chargers. In this entry-level engineering position, you will build your technical expertise while learning product development through practical application and staying abreast of innovative technology. You will also build your professional network, engage with peers and receive guidance from mentors in the field.

Responsibilities:

In this role, you will also deepen your knowledge base of Caterpillar's products, technologies, processes, services, and systems, which you will use to:

- Design & Development of Energy Storage Containers, Chargers, heavy & Light Fabrication, Cooling systems, accessories
- Validation - FEA Analysis, Test Data Analysis, Validation test planning
- Evaluate new products, processes, or systems
- Communicate results to customers, suppliers, team members, and other business units
- Contribute to the design of new products and processes
- Perform product and process maintenance

Requirements:

- Strong in Mechanical Engineering basics in the area of Applied Mechanics, Machine Design, FEA, Mechanical Vibration
- Understanding of power systems, Alternate energy systems and AC motor drives.
- Tools: Pro/E Creo, ANSYS, ABQUS, HyperMesh, SolidWorks.
- Fatigue and Vibration concepts related to various components and systems
- Basic knowledge of any Dynamic / Vibration Simulation software.
- Demonstrated excellent judgement and decision-making ability, demonstrated ability to independently solve problems
- Ability to communicate technical information effectively with team members and others in the work groups

Desirable:

- Knowledge of Power Electronics, Generator, Wiring harness, motor and inverter controls, distribution systems and microgrids

4. Fire System Safety Design

As an Associate Engineer, you will have the opportunity to learn from and contribute in a collaborative team environment in the area of design of new global products and processes. This group enables electrification of Caterpillar products by working on identifying power sources (Battery, fuel cells, PV) to integrating with applications. This position will involve Fire System Safety design and development of Battery Systems, Energy Storage Containers, Bi-Directional Power Inverters, Chargers. In this entry-level engineering position, you will build your technical expertise while learning product development through practical application and staying abreast of

innovative technology. You will also build your professional network, engage with peers and receive guidance from mentors in the field.

In this role, you will also deepen your knowledge base of Caterpillar's products, technologies, processes, services, and systems, which you will use to:

- Design and development of components and Systems related to Fire Suppression Systems and configurations for Battery Energy Storage Systems to meet functional, reliability and durability & cost goals
- Identify Equipment related to Fire Detection & Suppression (Fire Alarm, Smoke Aspiration, Gas Suppression etc.), Lead / Perform design & development tasks such as technology selection, component and system integration involving Mechanical, Electrical and Control modules
- Develop Piping/Hydraulic layout to carry extinguishing fluid/medium and Selection of Hydraulic Control components such as Solenoid Valves, Section Valves etc.
- Validation - FEA Analysis, Test Data Analysis, Validation test planning
- Evaluate new products, processes, or systems
- Communicate results to customers, suppliers, team members, and other business units
- Contribute to the design of new products and processes
- Perform product and process maintenance

Requirements:

- Strong Knowledge of Fire Detection (Fire Alarms, Smoke Aspirators etc.) and Suppression Systems (Fire Extinguishing modules such as Water based systems like Sprinkler, Deluge System and Foam System)
- Understanding of power systems, Alternate energy systems and AC motor drives.
- Tools: Pro/E Creo, ANSYS, ABQUS, HyperMesh, SolidWorks.

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- Fire systems design concepts related to various components and systems
- Basic knowledge of any Dynamic / Vibration Simulation software.
- Demonstrated excellent judgement and decision-making ability, demonstrated ability to independently solve problems
- Ability to communicate technical information effectively with team members and others in the work groups

Desirable:

- Knowledge of Power Electronics, Generator, Wiring harness, motor and inverter controls, distribution systems and microgrids

Joining By: 1 June 2022

Salary Details

CTC: 1,263,415 INR Per Annum

Gross: 1,048,668 INR Per Annum

CTC Breakup: Fixed - 11,22,979
Variable - 1, 40, 436
Total CTC - 12, 63, 415

Perks / Bonus: Group hospitalization (self & dependents) - 5,00,000
Group personal accident coverage (self) - 27,62,748

Bond: Yes

Selection Process

Resume Shortlist: Yes

Written Test: No

Online Test: No

Group Discussion: No

Medical Test: No

Personal Interview: Yes

No. of Rounds: 1

No. of Offers: 2

Minimum CGPA: 6.5 and Above with no current arrears

Eligibility

Recruiting PHDs: Yes

Eligible Departments: M.S.(R) in VLSI Design Tools and Technology