

PPPL	PRINCETON PLASMA PHYSICS LABORATORY	ORGANIZATION/ MISSION	No. O-008 Rev 4 page 1 of 4
	Subject: Engineering Department Organization and Mission	Effective Date: 6/12/17	Initiated by: Engineering Department Head
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Introduction

The Engineering Department provides the engineering resources and technical infrastructure for the Laboratory's missions. Specifically, the Department:

- Provides recognized engineering leadership and unique technical contribution to the Laboratory, US and World fusion programs.
- Ensures implementation and refinement of formal engineering processes in policies, procedures and standards that support the laboratory's mission.
- Ensures projects are performed balancing technical scope, cost and schedule.
- Assures project execution (scope, schedule, budget) that meets the Laboratory expectations.
- Maintains the technical infrastructure to ensure a safe and economically viable environment for current and future experiments.
- Stimulates research in cutting edge technologies, analyses and applications.
- Fosters engineering collaborations with other fusion laboratories in the US and worldwide.
- Is committed to continually improving our most important resource - our staff - through technical training and employee development, complying with safety and environmental regulations, and protecting DOE and Princeton University property.

Department Organization

The Department is organized functionally into nine Groups and three Offices:

- Department Head Office
- Engineering Collaborations Office
- Project Management Office
- Exploration Group
- Design Group
- Integration Group

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- Analysis Group
- CAD Group
- Fabrication Group
- Electronics Group
- Power Systems Group
- Heating Group

Responsibilities

The Department Head Office is primarily responsible for:

- Developing and communicating the strategic plan for all engineering activities.
- Providing resources to various projects and monitoring their performance.
- Managing the indirect department budgets.
- Overseeing engineering research and development.
- Supporting the operation of experimental devices.

Chief Engineer

- Providing technical leadership to all engineering matters at PPPL.
- Defining all engineering design processes, procedures, standards and documentation and providing oversight that they are being adhered to.
- Defining QA/QC requirements related to engineering activities and providing oversight that the QA/QC requirements are being adhered to.

Engineering Documentation Center

- Providing technical documentation management.

The Engineering Collaboration Office is primarily responsible for:

- Identifying opportunities for deployment of PPPL technical solutions in other laboratories in the US and worldwide.
- Understanding needs of other laboratories and translating them to technical solutions PPPL can develop.

The Project Management Office is primarily responsible for:

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- Establishing a framework for PPPL project management and work planning processes and procedures.
- Providing oversight via the Work Planning Review Board, WAF Review and the Project Status Review Board.
- Mentoring and advising projects to ensure compliance and consistency with Laboratory and DOE requirements.
- Providing initial and ongoing training for Cognizant Individuals and Responsible Line Managers.
- Conducting Lessons Learned Reviews to identify risks and opportunities for improvement.

The Exploration Group is primarily responsible for:

- Providing design, development, fabrication, maintenance and operation for PPPL Plasma Science and Technology experiments as well as in support of innovative engineering solutions.

The Design Group is primarily responsible for:

- Providing conceptual, preliminary and final designs and systems engineering services in support of new and upgraded PPPL experimental facilities.
- Developing the engineering designs and advancing the state-of-the-art for magnetic confinement plasma physics research devices, including magnets, diagnostics, plasma facing components.
- Providing COTS-based design as well as operation and maintenance support for vacuum, cooling and baking systems.

The Integration Group is primarily responsible for:

- Providing conceptual, preliminary and final designs and systems engineering services in support of ITER Diagnostic System Design and Port Plug Engineering and Integration.
- Develop system studies for fusion power plant concepts.

The Analysis Group is primarily responsible for:

- Performing engineering analysis including structural, thermal, electromagnetic and neutronic.
- Developing and maintaining application codes for engineering analysis.

The CAD Group is primarily responsible for:

- Providing centrally managed Computer Aided Design (CAD) services using state of the art software, equipment and techniques.
- Developing and maintaining application codes for engineering design.

The Fabrication Group is primarily responsible for:

- Providing construction engineering management.
- Providing management and oversight for the hoisting and rigging and welding programs.
- Providing shop services required for mechanical, electrical, materials test, brazing and welding, vacuum components testing, hardware assembly and machine operations.

The Electronics Group is primarily responsible for:

- Design, implementation, repair and calibration of electronic equipment services in support of PPPL experimental facilities.

The Power Systems Group is primarily responsible for:

- Operating, maintaining and upgrading AC Power distribution systems including emergency (diesel) and standby power supplies.
- Operating, maintaining and upgrading motor generator sets and ancillary equipment.
- The design, development, operation and maintenance of electrical power conversion systems.

The Heating Group is primarily responsible for:

- The design, operation and maintenance of radio frequency systems, neutral beam systems and other technologies used as plasma heating systems.