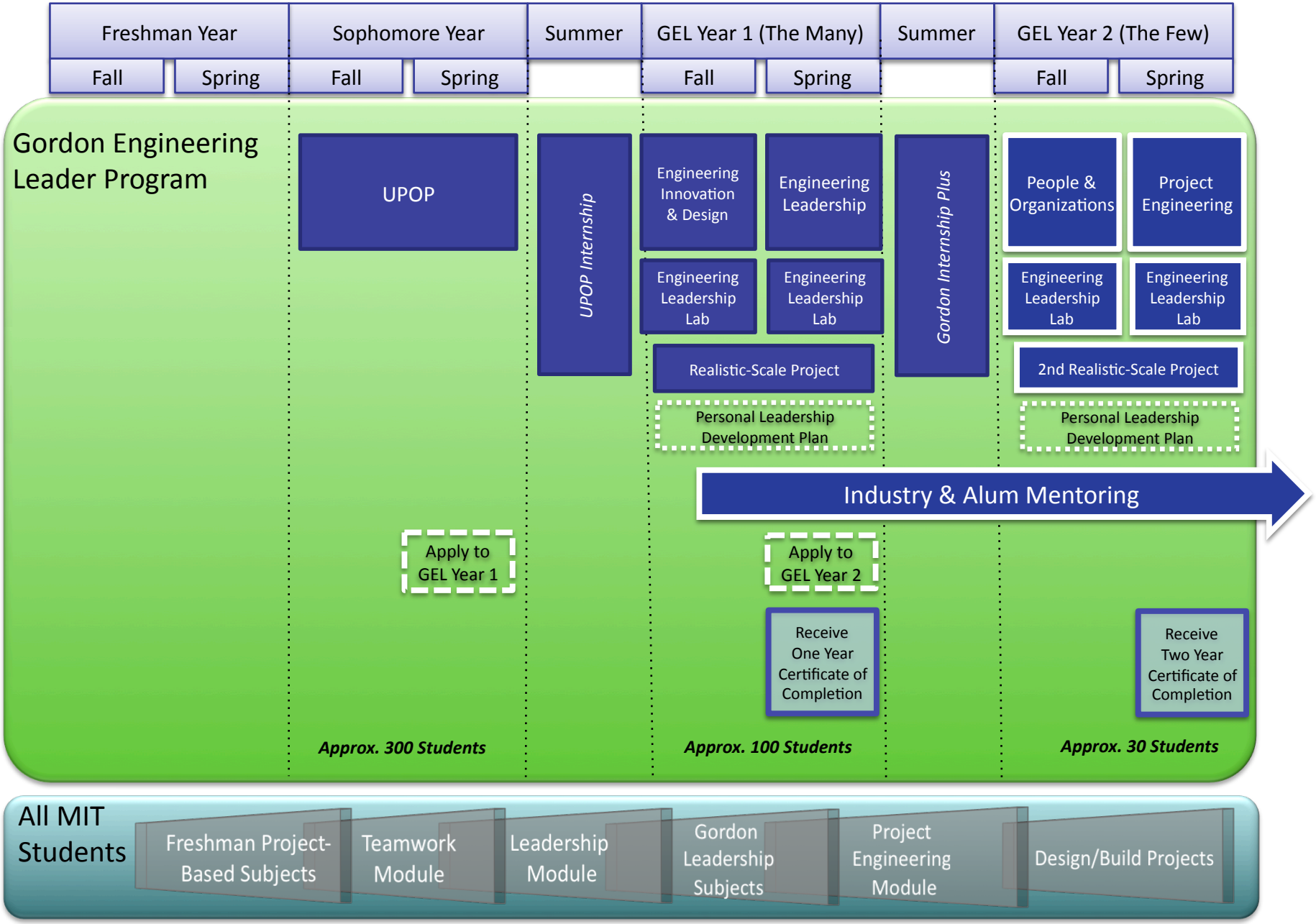
The Gordon-MIT Engineering Leadership Program



Bernard M. Gordon-MIT Engineering Leadership Program
Capabilities of Effective Engineering Leaders

Engineers design and build things that meet the needs of customers, beneficiaries and ultimately society. We are dedicated to empowering MIT students to make the very most of their talents and to help them set and achieve personal goals, including the leading or founding of teams and organizations which tackle and solve the problems of the market and society that can be addressed (at least in part) by technical solutions.

Specifically, we seek to educate and develop the character of outstanding MIT students as the potential future leaders of engineering practice and development. In this program, *engineering leadership* is defined as the technical leadership of change: the *innovative* conception, design and *implementation* of new products/processes/projects/materials/molecules/ software/systems, supported by the *invention* of enabling technologies, to meet the needs of customers and society.

In this program, our educational task is to provide opportunities for all engineering students to further develop, deepen, and broaden their engineering leadership capabilities.

The capabilities of engineering leadership upon which our curriculum is built, are based on the Four Capabilities model, developed at the MIT Sloan School of Management (Ancona 2007), and anchored in the scholarship of leadership.

In early 2008, a series of workshops was held at MIT, bringing together program stakeholders with diverse view of engineering leadership: alumni, students, faculty, and leaders from industry, the military, the community and from other leadership programs at MIT, resulting in *Capabilities of Effective Engineering Leaders* that emerged as a consensus of this group.

We have created three approaches to help students develop these capabilities. To engage all students we partner with departments to provide activities, class sessions, materials, and workshops on leadership, teamwork, and project engineering. Many students, about 100, enter our one-year program of two short courses, hands-on engineering leadership labs and a project, a mentorship, and a personal leadership development plan. A few students from the one year program, about 30, continue into the more intensive second year of two more short courses, more engineering leadership labs, a second project, an internship, additional mentoring and coaching, and a compelling final presentation of their personal leadership development plan.

Ancona, Malone, Orlikowski, & Senge (2007, February). “In Praise of the Incomplete Leader” Harvard Business Review.

Capabilities of Effective Engineering Leaders (short form) v3.6 6/2011

The Attitudes of Leadership - Core Personal Values and Character: reflect on beliefs and attitudes, and further evolve the personal capabilities that form a foundation for effective leadership

- Initiative
- Decision Making in the Face of Uncertainty
- Responsibility, Urgency and Will to Deliver
- Resourcefulness, Flexibility and Change
- Ethical Action, Integrity and Courage
- Trust and Loyalty
- Equity and Diversity
- Vision and Intention in Life
- Self-Awareness and Self-Improvement

Relating: developing key relationships and networks within and across organizations

- Inquiring and Dialoging
- Negotiation, Compromise and Conflict Resolution
- Advocacy
- Diverse Connections and Grouping
- Interpersonal Skills
- Structured Communications

Making Sense of Context: making sense of the world around us, and coming to understand the context in which the leader is operating - making a mental map of the complex environment, and explaining it simply to others

- Awareness of the Societal and Natural Context
- Awareness of the Needs of the Customer or Beneficiary
- Enterprise Awareness
- Appreciating New Technology
- Systems Thinking

Visioning: creating purposeful, compelling and transformational images of the future, and identifying what could and should be

- Identifying the Issue, Problem or Paradox
- Thinking Creatively, and Imagining and Communicating Possibilities
- Defining the Solution
- Creating the Solution Concept

Delivering on the Vision: leading transformation by designing processes and approaches to delivering on the vision, to move from abstraction to innovation, invention and implementation, i.e., to get the engineering done

- Building and Leading an Organization and Extended Organization
- Planning and Managing a Project to Completion
- Exercising Project/Solution Judgment and Critical Reasoning
- Innovation
- Invention
- Implementation and Operation