Engineering Leadership Program

ASIAN INSTITUTE OF TECHNOLOGY
SCHOOL OF ENGINEERING AND TECHNOLOGY
Offshore Technology and Management

ELP 1.3: LEADING AND MANAGING TECHNICAL PROJECTS (INCLUDING REMOTE PROJECTS 3(3-0)   Semester: JAN 2016

Rationale: Leading teams in developing engineering or technical projects requires increasing knowledge of technical and personal skills as projects' complexity increase due to: globalization of supply chains; global access to information, labor, and materials; complex international project financing; legal, professional and ethical requirements; and collaboration among the development team. Professional engineering and technical organizations require that team leaders and organizational executives possess the knowledge of available tools and, more importantly, how to use those tools along with personal traits to complete projects. Managing individuals in a professional work environment, and teams so that effective collaboration occurs is often as challenging as mastering the technical knowledge required to complete a project. Project managers must always have a strong understanding of the technical aspects of a project, both the challenges and potential solutions; however, a lack of leadership and management skills often creates difficulties for project managers who lead a team.

In addition to leadership skills required of team managers and leaders, projects today may have team members dispersed among a large geographical region, within a country or among several countries. A need exists for managers to coordinate, manage and lead the team considering: technical project requirements; cultural differences; and interpersonal conflicts. Used properly, leadership and management knowledge, skills and tools can facilitate the execution of large projects while optimizing available resources (human, material, equipment, money, etc.).

Catalog Description: This course will provide the participants with knowledge about leadership and management concepts and practices that are applicable to engineering and technical. The course intends to impart upon the participants effective methods in developing and motivating a team, while also illustrating how poor leadership can exacerbate difficult situations in project execution. The course provides: 1) exposure to the theory, mechanics traits of effective leadership and management; and 2) illustration (through case studies and experiential learning) of how leadership decisions affect the execution of a project. Group and individual exercises allow participants to practice their ability to lead others.

Pre-requisite:

1. ELP 1.1 : Developing Leadership Capability
2. ELP 1.2 : Communication Skill for Leaders

Course Outline:

1. Project leadership and management principles for engineering or technical projects; leadership theory and analysis.
1.1. Applying leadership principles to engineering or technical projects. Satisfying the needs of clients, a project's end users, and legal, ethical and professional requirements.

2. Leadership and Management Principles
2.1. Analyzing the qualities of successful leaders
2.2. Characterizing leadership/management styles
2.3. Understanding the challenges and benefits associated with working with and leading an engineering or technical project team.
2.3.1. Typical skill sets possessed by team members.
2.3.2. Typical skill sets lacking by team members
2.3.3. Mentoring and leading a team possessing a set of skills (and lacking in other skills)
2.4. Create strategies to manage and lead in a culturally diverse context by:
2.4.1. Understanding cultures of the personnel working on the project
2.4.2. Fostering trust and respect among teams and team members.
2.5. Failure to lead.
2.6. Leadership skill self-assessment.

3. Motivational and Cultural Considerations
3.1. Managing through direction and motivation
3.2. How cultural perspectives affect managing projects
3.3. Analyze, select, and deploy appropriate technologies available for leading remote teams.
3.4. Create strategies to overcome the technological, organizational and cultural challenges.
3.5. Analyze, select, and deploy appropriate technologies available for leading remote teams.

4. Communicating and Motivating for Project Success
4.1. Understanding the relationship between motivation and team success
4.2. Effective superior, peer, and subordinate interactions
4.3. Applying problem solving skills of the team (as a whole) and also team members (as individuals)
4.4. Facilitate project execution through effective communication.
4.5. Motivating
4.5.1. With authority to manage
4.5.2. Without authority to manage
4.5.3. "By instruction" or "by encouragement": leadership style

5. Stakeholder (Project Development Team) Management
5.1. Identify Stakeholders: end users, planners, designers, builders, operators, and the staff required to support the technical work.
5.2. Plan Stakeholder Management
5.3. Plan Communications Management
5.4. Manage Stakeholder Engagement
5.5. Control Stakeholder Engagement
5.6. Close Project or Phase

6. Development/building an engineering or technical team
6.1. Applying techniques to improve team performance
6.2. Establishing the project team structure
6.3. Motivating the project team
6.4. Keeping the project team on track

7. Leadership Quality
7.1. Poor leadership
7.2. Lack of leadership
7.3. Effective leadership
7.4. Leadership style
7.4.1. Leadership "by direction"
7.4.2. Leadership "by motivation and encouragement"

Laboratory session: 15 hours of interactive session

Textbook: Lecture notes and selected papers

Reference books:

1. *A Process Reference Model for Leading Complex Virtual Teams: Helping Project Managers improve their leadership capability,* by David Truffle, Publisher VDM Verlag Dr. Müller (March 21, 2010)
2. *Making Things Happen: Mastering Project Management (Theory In Practice) Revised Edition*, by Scott Berkun, Publisher O'Reilly Media; Revised edition (April 4, 2008.
3. *A Guide to the Project Management Body of Knowledge: PMBOK(R) Guide 5th Edition*, by Project Management Institute, Publisher Project Management Institute; 5 edition (January 1, 2013).
4. *'Project Management: A Systems Approach to Planning, Scheduling and Controlling* by Harold R. Kerzner, Publisher: Wiley; 11 edition (February 18, 2013)

Journals and Magazines:

1. Engineering Management Journal
2. International Journal of Managing Projects in Business
3. Leadership, http://lea.sagepub.com/
4. http://www.projecttimes.com/
5. http://tunnellingjournal.com/

Grading system:

1. Mid-semester exam (25%)
2. Final exam (25%),
3. Assignments/projects (30%).
4. Laboratory Sessions (20%).

Instructors:

Expected outcomes: Students, at the completion of this course, are expected to:

1. Understand the concepts project management associated with managing a technical project.
2. Lead a technical project successfully by translating the technical skills into interpersonal knowledge and information and make it flow up and down the line.
3. Identify and apply project management principles which are specific to technical projects
4. Identify and apply appropriate leadership and management strategies for technical projects
5. Develop a personal approach to both leading and managing technical project
6. Understand the challenges and benefits of working with and leading a remote project team and demonstrate the ability to do so.
7. Understand team building and development, leadership styles, conflict resolution, building consensus, and fostering collaboration for leading and managing a remote team and develop strategies to do so.
8. Identify, analyze, and use best technology from the available technologies to lead a particular remote team.
9. Demonstrate the ability to manage a team to maintain project's progress through the project lifecycle in a remote environment.
10. Understand how poor leadership can affect a project.
11. Understand how a lack of leadership can affect a project
12. Understand the choice of leadership style for a given circumstance