o Engineering management is the critical bridge that connects technical expertise with the practical skills needed to lead and manage complex projects and teams.o This helps to track the financial health of projects and organizations and to make informed decisions about resource allocation.Controlling o Controlling involves measuring performance and comparing it to standards to ensure that work conforms to requirements and brings about the desired outcome.o They are responsible for the day-to-day operations of the organization, ensuring that tasks are completed efficiently and effectively, and that resources are used wisely.o If the organization is struggling to keep up with the pace of technological change, the project manager might implement new tools or technologies to improve efficiency and effectivenesso Imagine a world where innovative technology is developed but cannot be implemented effectively, or where brilliant engineers struggle to lead and motivate their teams.o This involves analyzing the data to determine whether the performance is meeting expectations or if there are any areas where improvements are needed.o For example, an engineering organization might adopt the ISO 9001 standard for quality management or the Six Sigma methodology for process improvement.Corrective Action o Addressing Communication Gaps: o Improving communication between team members or stakeholders.o If there is a breakdown in communication between team members, the project manager might implement new communication channels, encourage team members to communicate more frequently, or provide training on effective communication skills.o It's about utilizing engineering knowledge to create real-world solutions, optimize resources, and drive organizational success.o They are visionary thinkers who set the direction for the organization, inspire others to achieve their full potential, and drive innovation.o Taking Corrective Action: o Adjust processes or procedures to improve performance.o This is a useful method for identifying bottlenecks and improving efficiency.o This helps to monitor the stability of processes and detect any deviations from expected performance levels.This may involve: o Adjusting Processes: o Making changes to the way work is done to improve efficiency or effectiveness.o For example, if a team is consistently falling behind schedule, the project manager might adjust the project plan by adding more resources, re-prioritizing tasks, or changing the schedule.30 Dr. Iyad Zoukar Lecture 01: What is Engineering Management o Managers: 15.o This is a critical function in engineering management, as it helps to ensure that projects are completed on time, within budget, and to the required quality standards.32 Dr. Iyad Zoukar Lecture 01: What is Engineering Management o Measuring Performance: 16.o This can be done using a variety of tools, such as control charts, performance reports, and feedback surveys.o This may involve training employees, improving communication, or implementing new tools and technologies.Setting Standards o Standards should be clearly defined and based on: o Company Expectations: o What the organization expects from its employees and projects.o Best Practices: o Industry-accepted standards and methodologies for achieving quality and efficiency.Measuring Performance o Performance can be measured in a variety of ways, including: o Time Study: o Measuring the time it takes to complete a task.o Rating Scales: o Assessing performance against pre-determined criteria.o Financial Metrics: o Using financial measures (e.g., cost, revenue, profit) to assess performance.Corrective Action o Corrective action involves taking the necessary steps to correct any deviations from established standards.o Re-Training Employees: o Providing additional training or guidance to improve skills and

knowledge.o If employees are consistently making mistakes or failing to meet performance standards, the project manager might provide additional training or coaching.o Implementing New Tools or Technologies: o Introducing new tools or technologies to enhance performance.o This is where engineering management comes in, providing the framework for success.3 Dr. Iyad Zoukar Lecture 01: What is Engineering Management 2.Leader vs. Manager o Focus on daily operations and efficiency.o They buy into a vision, follow directions, administer innovation, look inside the organization, get work done, solve problems, and effectively use resources.Dr. Iyad Zoukar 31 Lecture 01: What is Engineering Management 16.o Standards should be specific, measurable, achievable, relevant, and time-bound (SMART).33 Dr. Iyad Zoukar Lecture 01: What is Engineering Management 17.o For example, a company might have standards for communication, teamwork, and ethical behavior.34 Dr. Iyad Zoukar Lecture 01: What is Engineering Management 18.o Control Charts: o Tracking data over time to identify trends and patterns.35 Dr. Iyad Zoukar Lecture 01: What is Engineering Management 19.36 Dr. Iyad Zoukar Lecture 01: What is Engineering Management 19.o Leaders: o Focus on long-term vision and inspire others.o Setting Standards: o Establish clear expectations for performance.o Comparing Results: o Identify deviations from standards.o Customer Requirements: o What the customer needs and expects from the product or service.Controlling o Track actual results and compare them to standards.o For example, a customer might require that a product meet specific performance standards or be delivered within a certain timeframe.o This can be used to evaluate employee performance, project progress, or product quality.o They look outside the organization, set the work, bring change, and set standards.