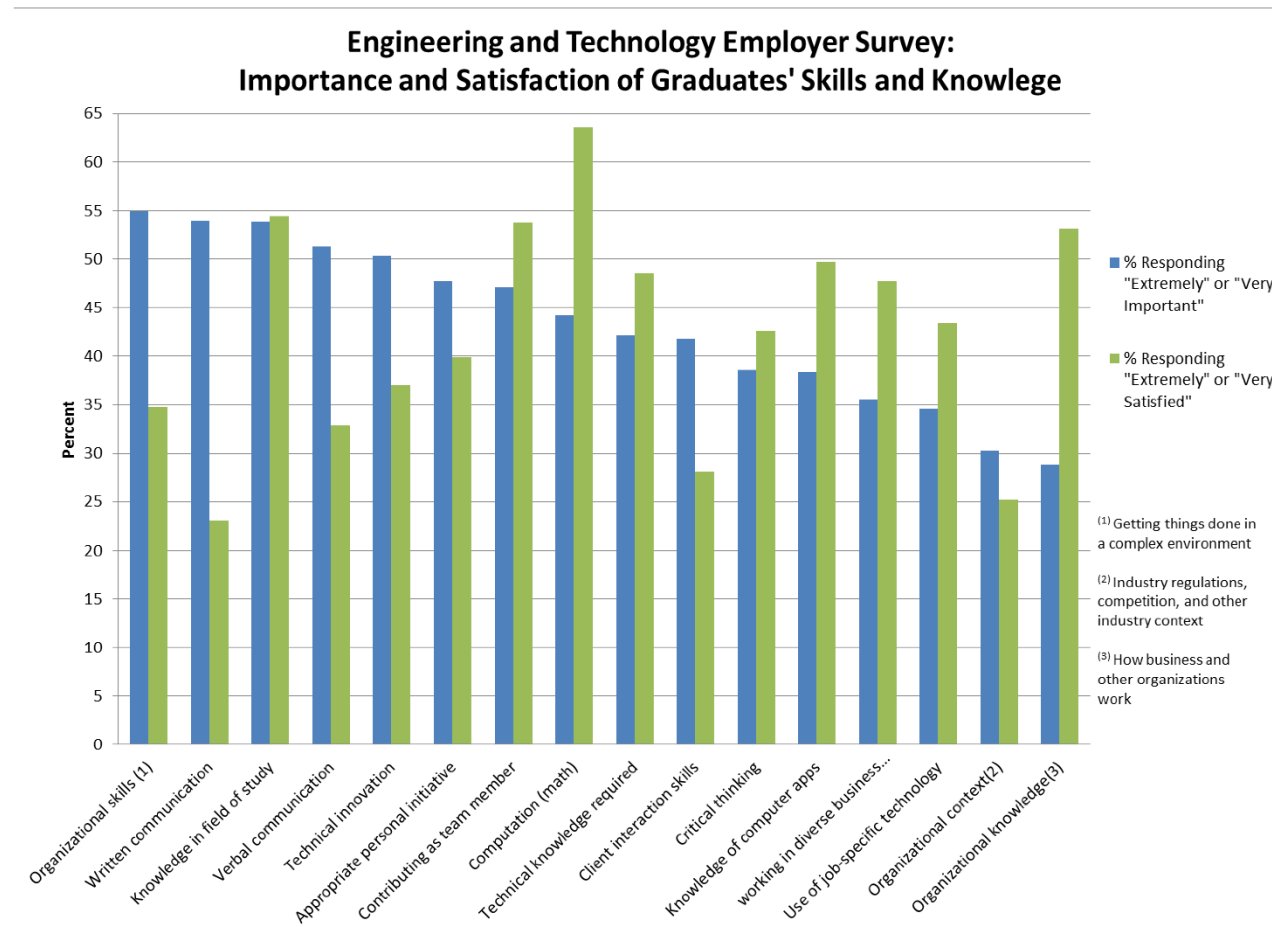


# Why is teamwork so important?

- Power of collaboration
- Have to solve ever more complex problems
- More factors go into design than ever before
- Multi-national corporations
- Competitiveness requires short development times → concurrent engineering
- Project management

# Why is teamwork so important?

## ■ Survey results from ETIC





# Teamwork and project management

- Organize work around project (or product) not functions within organization
- Inherently cross-functional (inter-disciplinary)
- Project manager's job (?):
  - ☐ Complete a project
  - ☐ On time
  - ☐ Within budget
  - ☐ With personnel given
- PM plans work requirements, schedules and directs the use of resources (people, money, materials, equipment)
- Gantt charts for organization
- PM monitors by comparing actual and predicted outcomes

# Teamwork and project management

## □ Example from textbook:

**Table 7.1** Team A-9 (“Semi-Conscious Objectors”): Gantt Chart for Object Relocator: Fall 2013

Task	Leader(s)	Nov									
		Oct 11-17	Oct 18-25	Oct 26-31	Nov 1-7	Nov 8-14	Nov 15-21	Nov 22-28	29-Dec 5	Dec 6-12	
Finalize Design	Team										
Procure Materials	Joe										
Pick-Up Module	Jaime										
Conveyor Assembly	George										
Working Prototype	Team										
Fine Tuning Machine	Jaime/Team										
Instruction Manual	George										
Professor Tests Projects	Team										
Report Rough Draft	Sally										
Finalize CAD Drawings	Ahmad										
Presentation	Ahmad/Joe										
Final Report Due	Team										
Judges test best two projects per class	Team										

We will follow a different approach, so called Agile / Scrum project management



# Team development

## ■ Five stages:

1. Forming
2. Storming
3. Norming
4. Performing
5. Adjourning



# Successful teams

## ■ Team attributes

1. Common goal or purpose
2. Leadership
3. Unique contributions from each member
4. Effective team communication
5. Creative spark
6. Harmonious relationships among team members
7. Effective planning and use of resources



# Successful team members

## ■ Attributes

1. Attendance
2. Responsible
3. Abilities needed by the team
4. Creative, energetic
5. (Positive) personality



# Team leadership

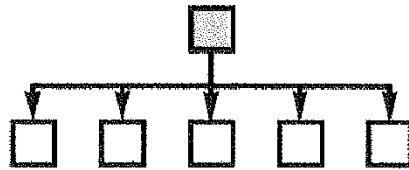
## ■ Attributes and role

1. Focus on the purpose
2. Team builder
3. Plans well and effectively utilizes resources
4. Runs effective meetings
5. Communicates effectively
6. Fosters positive environment
7. Fosters high levels of performance, creativity and professionalism

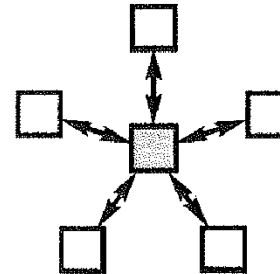


# Team structure

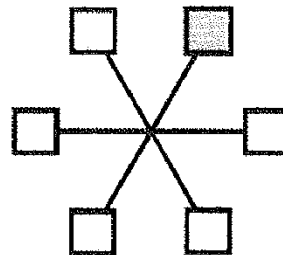
1. Traditional Team Structure:  
Top-down direction from leader.



2. Participative Team Structure: The leader is accountable to team members, receives input from members, gives direction to members.



3. Shared Leadership Team Structure:  
The leader is also a participating team member; the leadership function may be rotated among team members.



4. The relationship between a student-directed team and their instructor.

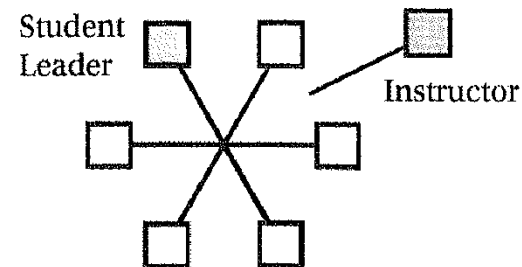


Figure 7.2 Possible team structures.



# Decision making

- Consensus
- Majority
- Minority
- Averaging
- Expert
- Authority rule without discussion
- Authority rule with discussion



## Possible metrics

- Did it get the job done?
- Did it do it well? High quality?
- Did the team grow / develop over time?
- Did you enjoy working with others?
- Peer-evaluation (to be done on CATME)
- ~~Evaluate team leader~~
- Evaluate team members' contributions



## CATME peer assessment

- Several dimensions to peer evaluation:
- Contributing to the Team's Work
- Interacting with Teammates
- Keeping the Team on Track
- Expecting Quality
- Having Relevant knowledge, Skills, and Abilities

# CATME peer assessment

Contributing to the Team's Work					<ul style="list-style-type: none"> <li>• Does more or higher-quality work than expected.</li> <li>• Makes important contributions that improve the team's work.</li> <li>• Helps to complete the work of teammates who are having difficulty.</li> </ul>
					Demonstrates behaviors described in the row just above and just below.
					<ul style="list-style-type: none"> <li>• Completes a fair share of the team's work with acceptable quality.</li> <li>• Keeps commitments and completes assignments on time.</li> <li>• Fills in for teammates when it is easy or important</li> </ul>
					Demonstrates behaviors described in the row just above and just below.
					<ul style="list-style-type: none"> <li>• Does not do a fair share of the team's work. Delivers sloppy or incomplete work.</li> <li>• Misses deadlines. Is late, unprepared, or absent for team meetings.</li> <li>• Does not assist teammates. Quits if the work becomes difficult.</li> </ul>

# CATME peer assessment

Interacting with Teammates				<ul style="list-style-type: none"> <li>Asks for and shows an interest in teammates' ideas and contributions.</li> <li>Improves communication among teammates. Provides encouragement or enthusiasm to the team.</li> <li>Asks teammates for feedback and uses their suggestions to improve.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>Listens to teammates and respects their contributions.</li> <li>Communicates clearly. Shares information with teammates. Participates fully in team activities.</li> <li>Respects and responds to feedback from teammates.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>Interrupts, ignores, bosses, or makes fun of teammates.</li> <li>Takes actions that affect teammates without their input. Does not share information.</li> <li>Complains, makes excuses, or does not interact with teammates. Accepts no help or advice.</li> </ul>

# CATME peer assessment

Keeping the team on track				<ul style="list-style-type: none"> <li>• Watches conditions affecting the team and monitors the team's progress.</li> <li>• Makes sure that teammates are making appropriate progress.</li> <li>• Gives teammates specific, timely, and constructive feedback.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Notices changes that influence the team's success.</li> <li>• Knows what everyone on the team should be doing and notices problems.</li> <li>• Alerts teammates or suggests solutions when the team's success is threatened.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Is unaware of whether the team is meeting its goals.</li> <li>• Does not pay attention to teammates' progress.</li> <li>• Avoids discussing team problems, even when they are obvious.</li> </ul>

# CATME peer assessment

Expecting quality				<ul style="list-style-type: none"> <li>• Motivates the team to do excellent work.</li> <li>• Cares that the team does outstanding work, even if there is no additional reward.</li> <li>• Believes that the team can do excellent work.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Encourages the team to do good work that meets all requirements.</li> <li>• Wants the team to perform well enough to earn all available rewards.</li> <li>• Believes that the team can fully meet its responsibilities.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Satisfied even if the team does not meet assigned standards.</li> <li>• Wants the team to avoid work, even if it hurts the team.</li> <li>• Doubts that the team can meet its requirements.</li> </ul>



# CATME peer assessment

Having relevant knowledge, skills and abilities				<ul style="list-style-type: none"> <li>• Demonstrates the knowledge, skills, and abilities to do excellent work.</li> <li>• Acquires new knowledge or skills to improve the team's performance.</li> <li>• Able to perform the role of any team member if necessary.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Has sufficient knowledge, skills, and abilities to contribute to the team's work.</li> <li>• Acquires knowledge or skills needed to meet requirements.</li> <li>• Able to perform some of the tasks normally done by other team members.</li> </ul>
				Demonstrates behaviors described in the row just above and just below.
				<ul style="list-style-type: none"> <li>• Missing basic qualifications needed to be a member of the team.</li> <li>• Unable or unwilling to develop knowledge or skills to contribute to the team.</li> <li>• Unable to perform any of the duties of other team members.</li> </ul>