



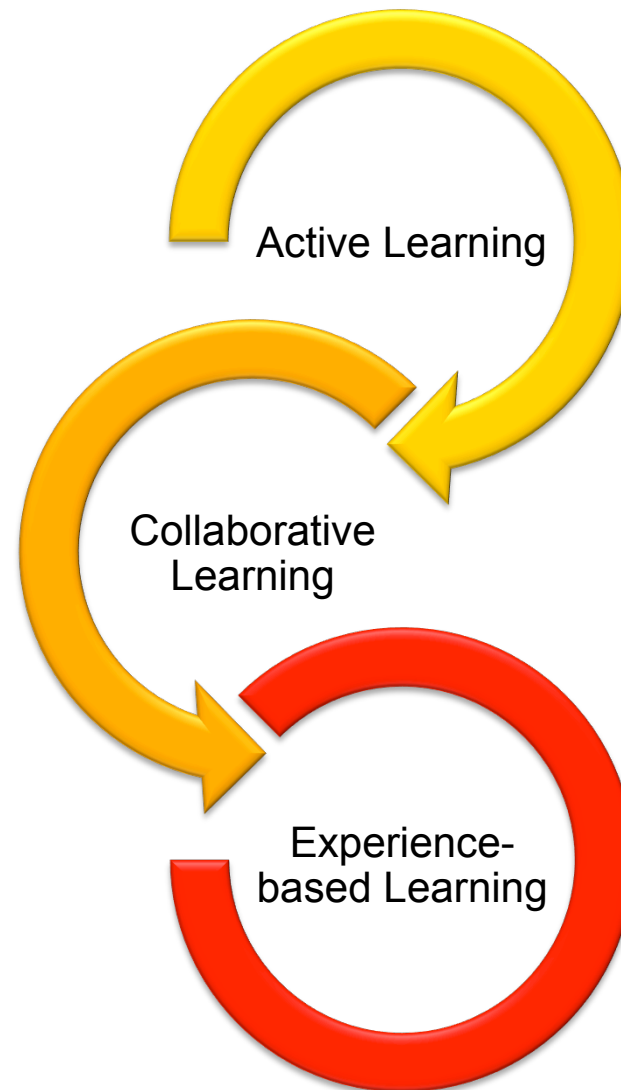
# Mechanical Engineering

## Engineering Faculty Forum “Collaborative Learning”

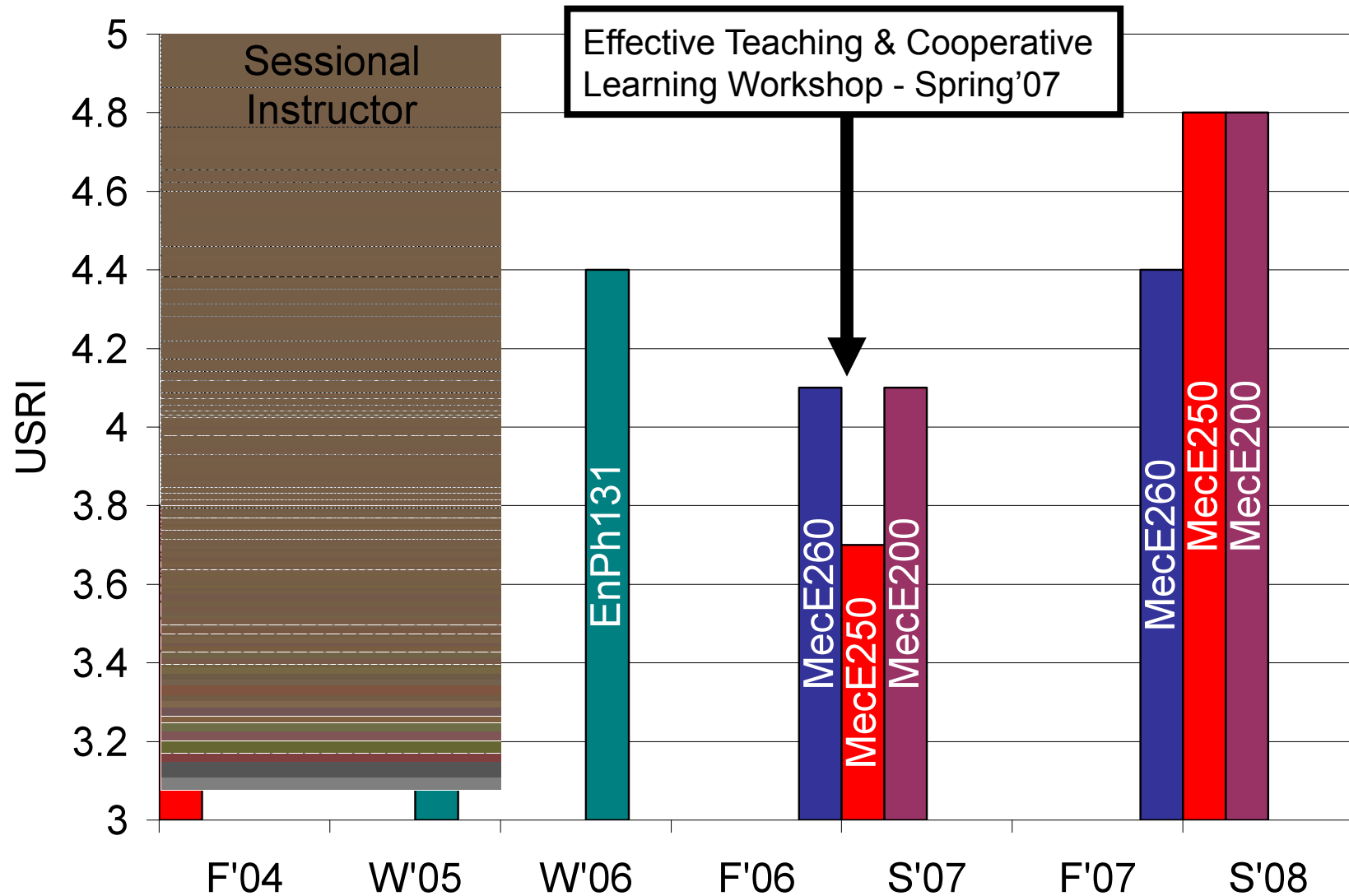
Experience in Design Courses  
by Pierre Mertiny

*moving life forward*

# Engineering Faculty Forum “Collaborative Learning”



# Engineering Faculty Forum "Collaborative Learning"





## **ALE's' bottom line: excellent technique**

### ***BUT***

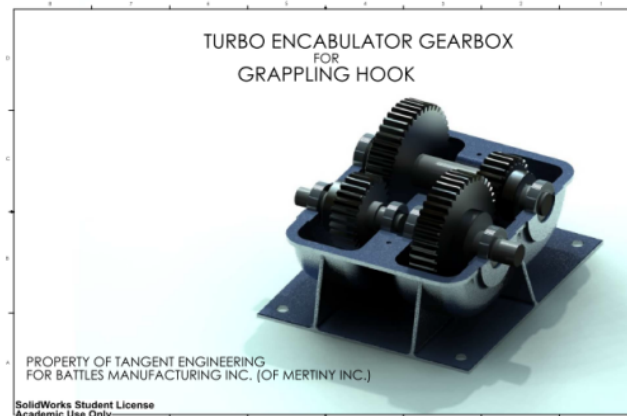
- Works best for engineering science classes
- Not easy to implement
- Expect difficulties during start-up
- Don't use ALE's spontaneously
- Takes time to find “good” ALE's
- Develop many, drop bad ones, add new

## **ALE's - what to expect from students:**

- Initially: awkward silence / bewilderment
- Must feel genuine and natural
- Needs techniques to engage students
  - mingle with crowd
  - call students by name
  - remembering previous answers
  - include “fun-facts”

## Mechanical Engineering Design Courses

- MECE 260 – Intro to engineering design
- MECE 360 – Advanced design concepts (codes & standards, engineering analysis)
- MECE 460 – Capstone project



## Common to All MECE X60 Courses

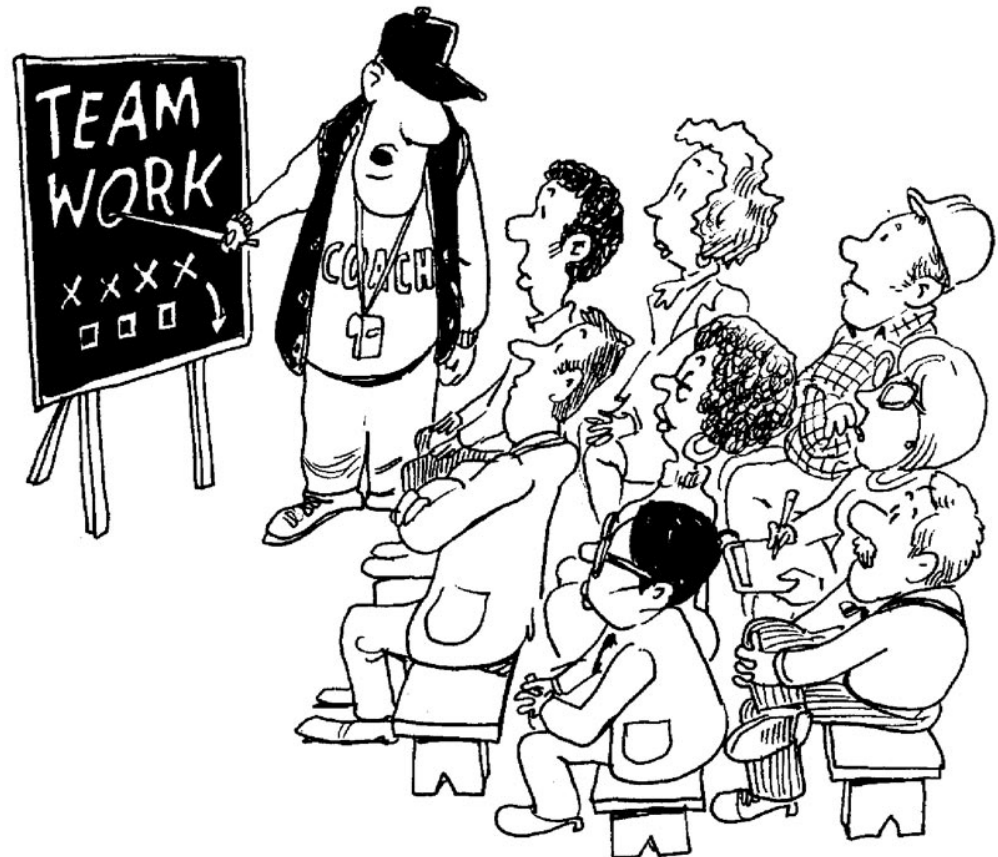
- Traditional lecture component, exams
- **Considerable project component → Teamwork**
- Design teams with 4 or 5 students
- Project mark dominated by design reports
- Awards for top performing teams (\$)





## Ensuring Positive Teamwork Experience

- **Professionalism**  
MECE 260:  
Learning styles,  
group dynamics,  
engineering ethics
- **Calibration of  
team goals and  
expectations**



## Ensuring Positive Teamwork Experience

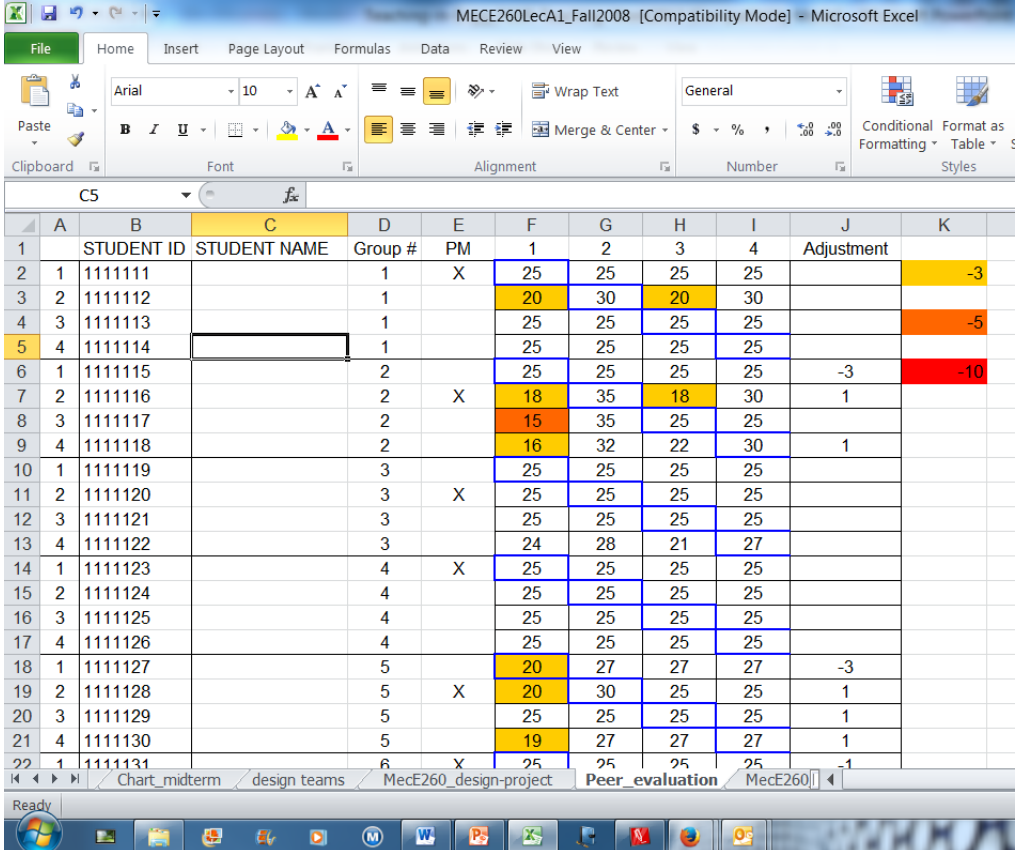
- **Guidance and mentoring by instructor**  
 MECE 360, 460:  
 frequent scheduled meetings with design teams, progress reporting

MecE 360: Engineering Design II  
 Signup Sheet for Biweekly Group Meetings  
 (NOTE: Group signup either for even (A) or odd (B) weeks)

	Monday	Tuesday	Wednesday	Thursday	Friday
7:30					
7:45					
8:00					
8:15					
8:30					
8:45					
9:00	Not available		Not available		Not available
9:15					
9:30					
9:45					
10:00					
10:15	MecE 360 Class		MecE 360 Class		MecE 360 Class
10:30					
10:45					
11:00		#1 - MTR Consulting Inc.		#2 - Canadian Engineering Solutions Inc.	
11:15		#7 - Team Dirk Knight		#3 - Luboil Inc.	
11:30		#10 - Fantastic Four Inc.			
11:45		#08 - google		#21 - Pro-Exide Engineering	
12:00		#20 - SAMP Engineering			#4 - Mechanical Assent
12:15				#06 - JORER Contracting	
12:30		#21 - JACE Engineering Consultants Inc.		#18 - The Garage	
12:45			Not available		
13:00					
13:15				#5 - F-RAM Engineering	#29 - gApple
13:30					#14 - Wayne Enterprises
13:45					
14:00	Afternoon reserved for graduate student supervision, research, administration, lecture preparation, grading, etc.				

## Ensuring Positive Teamwork Experience

- **Fairness**  
conflict resolution strategies,  
confidential team evaluation by all team members and effect on grading



	A	B	C	D	E	F	G	H	I	J	K
1		STUDENT ID	STUDENT NAME	Group #	PM	1	2	3	4	Adjustment	
2	1	1111111		1	X	25	25	25	25		-3
3	2	1111112		1		20	30	20	30		
4	3	1111113		1		25	25	25	25		-5
5	4	1111114		1		25	25	25	25		
6	1	1111115		2		25	25	25	25	-3	-10
7	2	1111116		2	X	18	35	18	30	1	
8	3	1111117		2		15	35	25	25		
9	4	1111118		2		16	32	22	30	1	
10	1	1111119		3		25	25	25	25		
11	2	1111120		3	X	25	25	25	25		
12	3	1111121		3		25	25	25	25		
13	4	1111122		3		24	28	21	27		
14	1	1111123		4	X	25	25	25	25		
15	2	1111124		4		25	25	25	25		
16	3	1111125		4		25	25	25	25		
17	4	1111126		4		25	25	25	25		
18	1	1111127		5		20	27	27	27	-3	
19	2	1111128		5	X	20	30	25	25	1	
20	3	1111129		5		25	25	25	25	1	
21	4	1111130		5		19	27	27	27	1	
22	1	1111131		6	X	25	25	25	25	-1	