OUTCOMES DATA

National Design Competitions

MAE Students continue to prove that they can compete with the very best from across the nation as they consistently finish in the top 10% in intercollegiate student design competitions.

In the 2003 Competitions

To be added

In the 2004 Competitions

To be added

In the 2005 Competitions

- They won the NASA Great Moonbuggy Race against 28 university teams in May,
- They took first place out of 20 teams in a NASA sponsored space mission design competition in Orlando, FL in May.
- They took 6th place out of 44 teams in the AIAA sponsored design build and fly competition, in Baltimore, MD in May
- They took 13th place out of 139 teams in the SAE sponsored Mini Baja competition in Tucson AZ in June.

In the 2006 competitions:

- They won the SAE Clean Snowmobile Challenge – Rookie Award and First Place in the Zero Emissions Category, March
- They took First Place in the University Rocket Launch Competition sponsored by the Experimental Sounding Rocket Association with their Chimaera Rocket, January

National Council of Examiners for Engineering and Surveying Fundamentals of Engineering Exam

The National Council of Examiners for Engineering and Surveying (NCEES) offers a Fundamentals in Engineering (FE) Exam each April and October. This national exam is the first step in working towards being licensed as a professional engineer after graduation. Most students will take this exam in their senor year just prior to graduation. Since all MAE graduates must pass the FE Exam to receive a BS in Mechanical Engineering, it can be said that 100% of MAE BS degree graduates pass this exam. The following table shows the number of USU students who have taken the exam during the time period April 2000 – April 2006. As shown in the table, USU students showed a higher competency level relative to the Nation average for each subject area except electrical circuits. MAE has addressed this concern by developing a new course taught by the ETE Department. Beginning Summer 2006, this course ENGR 2930 EE for Non Majors will replace the ECE 2200 course taught by the Electrical and Computer Engineering Department. Since this course is taken in the 2nd or 3rd year it will be several years before we will get any feed back from the FE Exam. At this writing, student response has been quite positive.

Summary of FE Exam results for USU students compared to national averages. Note that the exam structure was changed with the October 2005 Exam.

Subject Apr 2000-Apr 2005	USU ME % Correct	National % Correct
AM Subject		
Chemistry	65	63
Computers	78	67
Dynamics	71	64
Electrical Circuits	57	57
Engineering Economics	63	62
Ethics	70	69
Fluid Mechanics	70	62
Mat Sci/Str Mat	71	63
Mathematics	73	65
Mech of Materials	69	60
Statics	70	58
Thermodynamics	67	59
PM Subject		
Electrical Circuits	41	45
Chemistry	52	49
Computers	75	63
Dynamics	54	46
Engineering Economics	49	45
Ethics	79	75
Fluid Mechanics	59	50
Mathematics	65	59
Mat Sci/Str Mat	68	59
Mech of Materials	53	44
Statics	69	57
Thermodynamics	54	47
No. Examinees Passing	245	17,671
No. Examinees Taking	257	20,810
% Examinees Passing	95%	85%

Subject Oct 2005-Apr 2006	USU ME % Correct	National % Correct
AM Subject		
Mathematics	75	69
Engineering Probability and Stat	72	65
Chemistry	67	66
Computers	78	69
Ethics and Business Practices	82	78
Engineering Economics	72	68
Engineering Mechanics (Statics	76	65
Strength of Materials	81	71
Material Properties	72	58
Fluid Mechanics	71	61
Electricity and Magnetism	62	58
Thermodynamics	63	58
PM Subject		
Advanced Engineering Mathematics	81	76
Engineering Probability and Stat	53	47
Biology	46	44
Engineering Economics	61	62
Application of Engineering Mechanics	54	47
Engineering of Materials	63	55
Fluids	61	56
Electricity and Magnetism	44	46
Thermodynamics and Heat Trans	61	53
No. Examinees Passing	27	1,556
No. Examinees Taking	28	2,014
% Examinees Passing	95%	77%

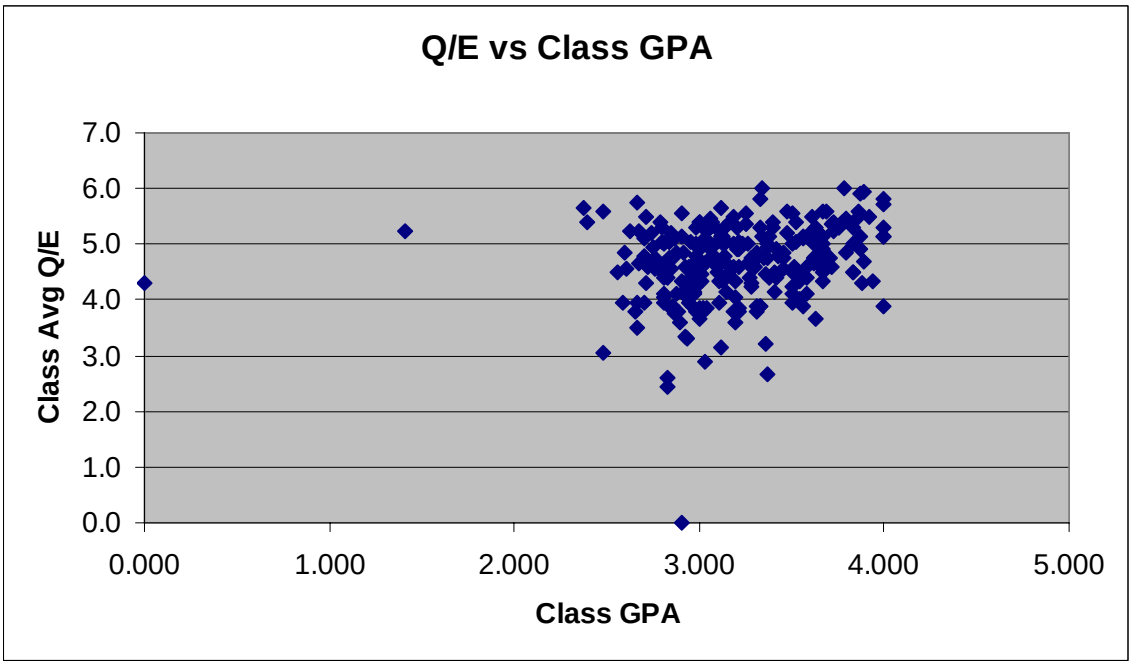
Student Teacher/Course Evaluations

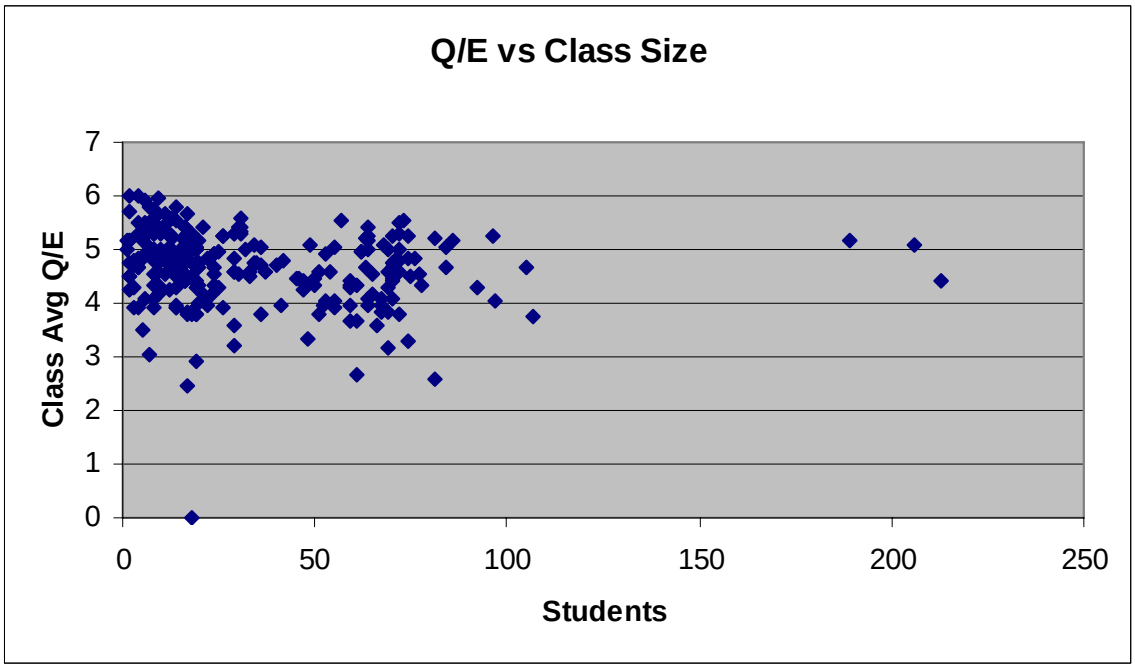
Teacher/Course evaluations are completed each semester for all courses. There are eight questions concerned with information about the course and ten questions concerned with information about the instructor. These two categories are summarized with two overall evaluation questions: 1) Overall quality of the course and 2) Instructors effectiveness. The following table provides a summary of the overall evaluations for all MAE courses and instructors. The scale is 1-6, with 6 being Excellent and 1 being Very Poor.

	Overall Quality of Course			Effectiveness of Instructor		
	MAE	College	USU	MAE	College	USU
S- 2006	4.8	4.8	5.0	4.8	4.9	5.1
F- 2005	4.7	4.8	5.0	4.7	4.8	4.1
S- 2005	4.6	4.7	5.0	4.7	4.7	5.1
F- 2004	4.7	4.7	5.0	4.6	4.7	5.0
S- 2004	4.6	4.7	5.0	4.7	4.7	5.0
F- 2003	4.2	4.5	4.9	4.2	4.5	5.0
S- 2003	4.6	4.7	4.9	4.6	4.8	5.0
F- 2002	4.5	4.6	4.9	4.5	4.6	5.0
S- 2002	4.7	4.7	4.9	4.6	4.8	5.0
F- 2001	4.5	4.7	4.9	4.4	4.7	5.0
S- 2001	4.4	4.7	4.9	4.6	4.7	5.0
F- 2000	4.5	4.7	4.9	4.5	4.7	4.9
S- 2000	4.6	4.7	4.9	4.6	4.7	4.9

The following two tables gives the average of the quality and effectiveness scores for each MAE class for 1998-2004 as a function of the average class grade point and the class size, respectively.

Q/E = Average of Course Quality and Instructor Effectiveness



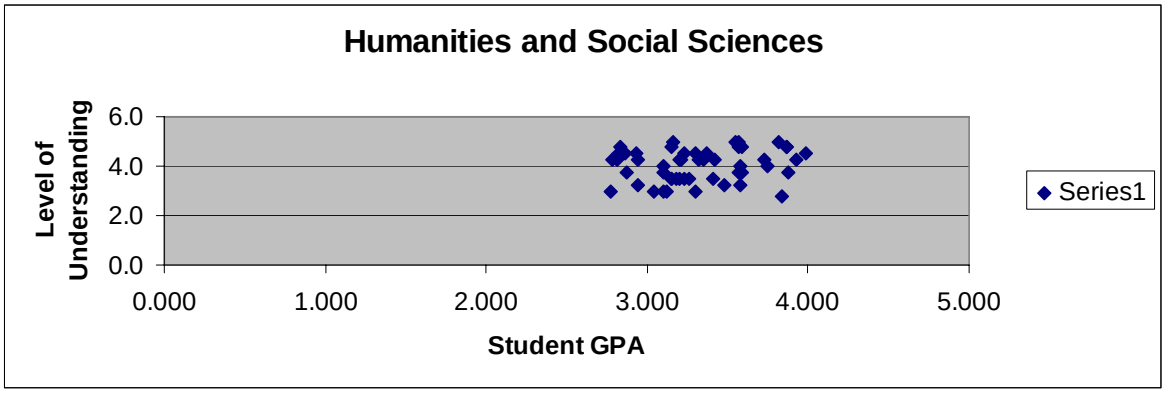


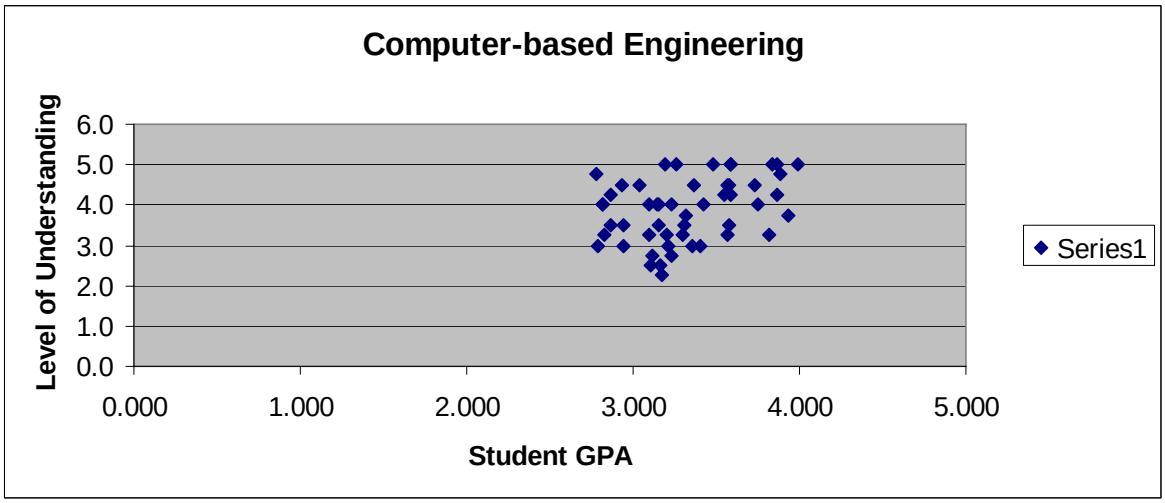
Exit Survey by Graduating Students

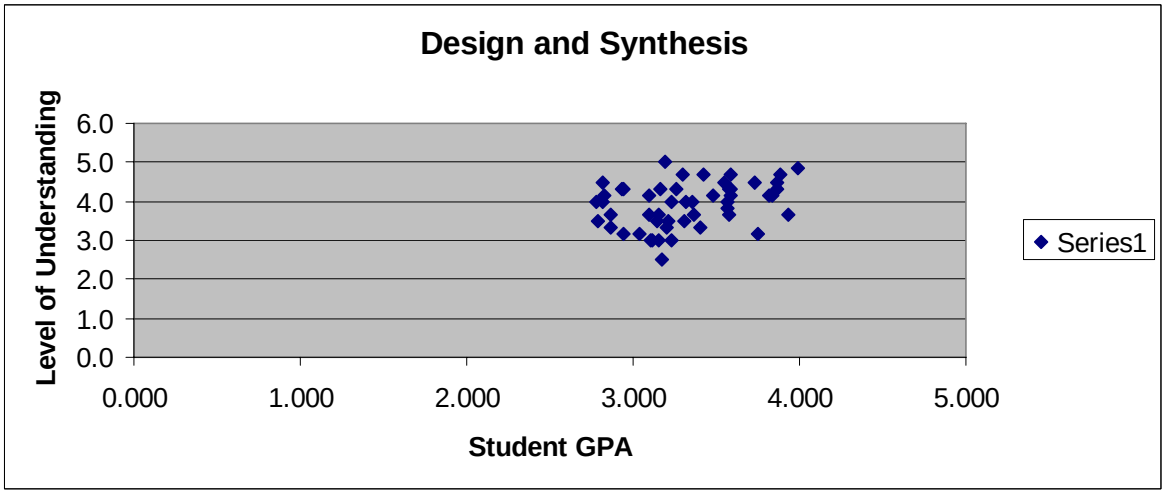
Each semester the graduating students are asked to complete an exit survey that consist of 61 questions arranged in the following categories:

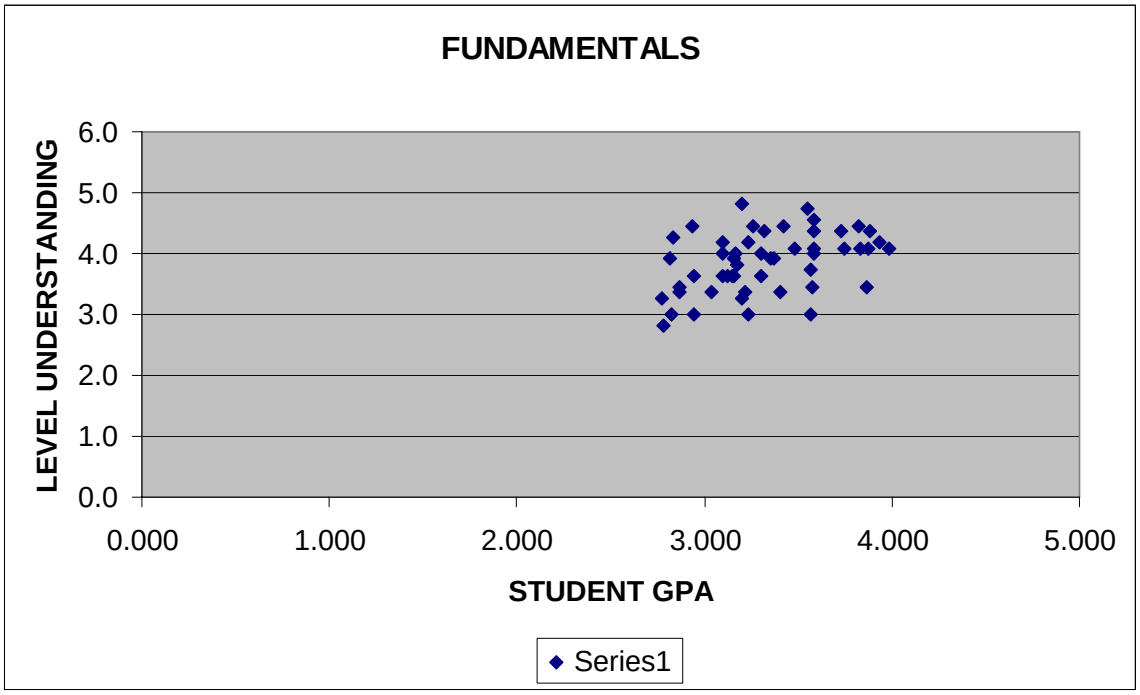
- Engineering Fundamentals
- Communications
- Laboratory Experiences
- Computer Based Engineering
- Humanities and Social Sciences
- Design and Synthesis
- Independent Learning
- Quality of Instruction
- Quality of Advisement
- Equity of Treatment

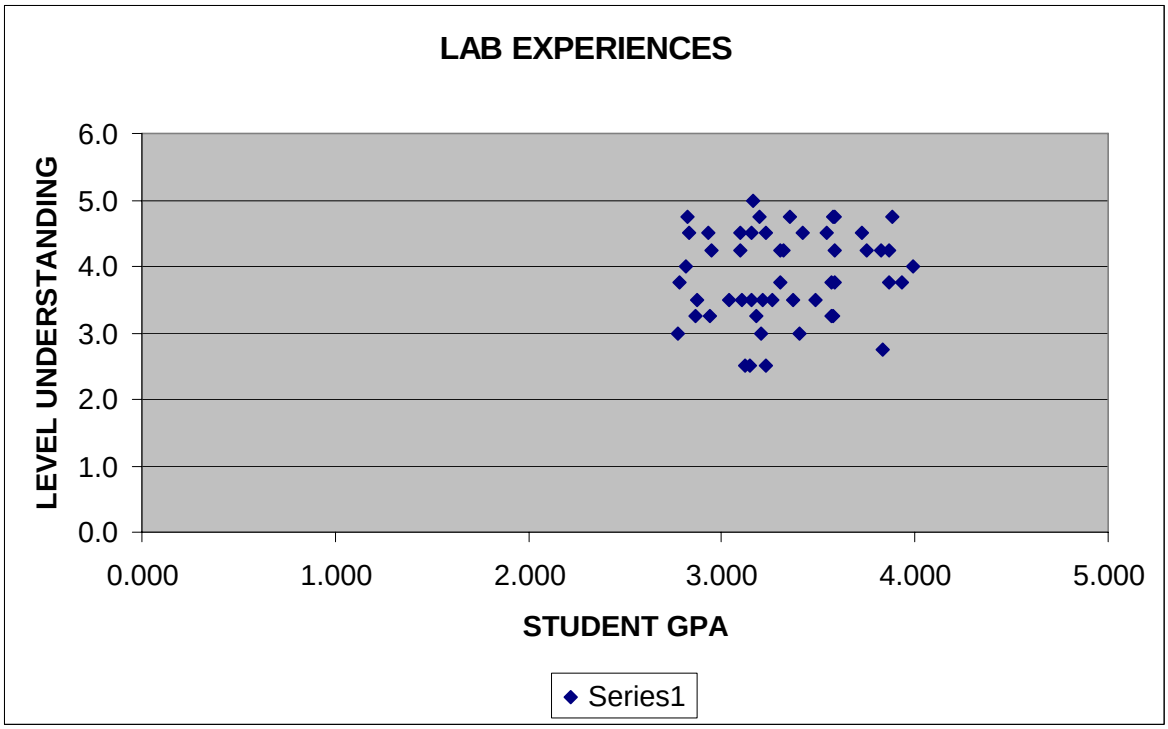
Each student is asked to state how confident (level of understanding) he or she is in each area on the exit survey (5 = Very Confident and 1 = no confidence) The average response for each category for each student is given in the following graphs as a function of student's overall grade point average. Since the data do not show a wide variation from year to year, the data for the AY 2005 are presented.

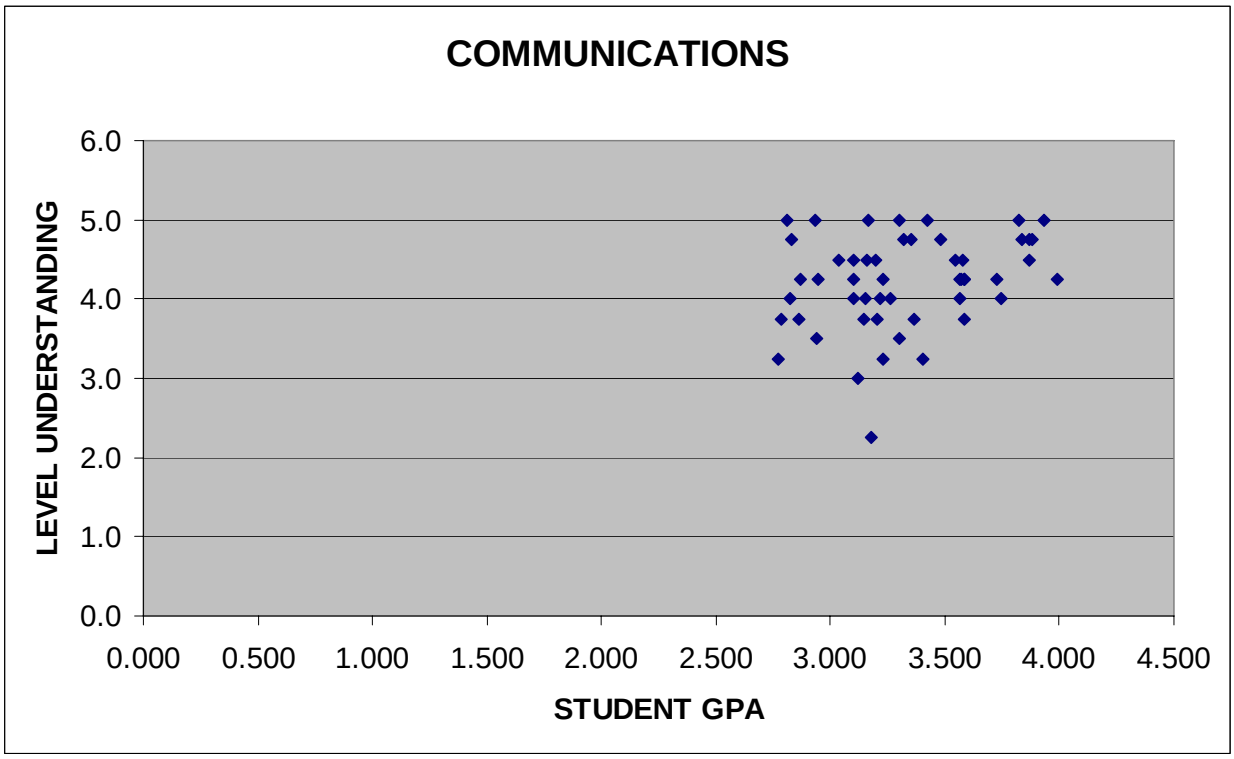

Humanities and Social Sciences
Level of Understanding
6.0
4.0
2.0
0.0
0.000
1.000
2.000
3.000
4.000
5.000
Student GPA
Series1

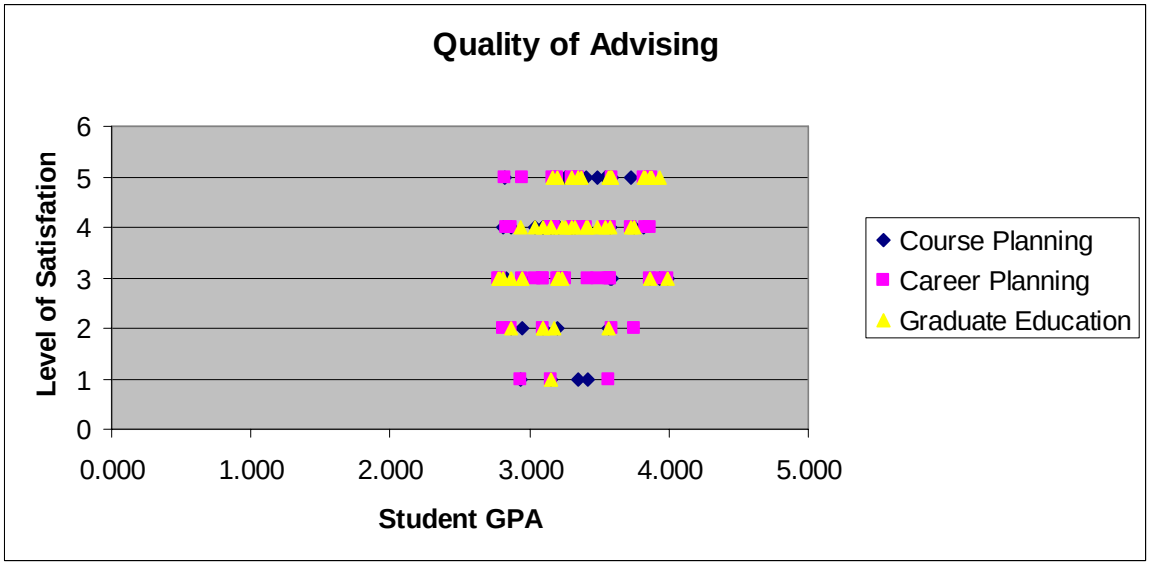

Computer-based Engineering
Level of Understanding
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.000
1.000
2.000
3.000
4.000
5.000
Student GPA
Series1

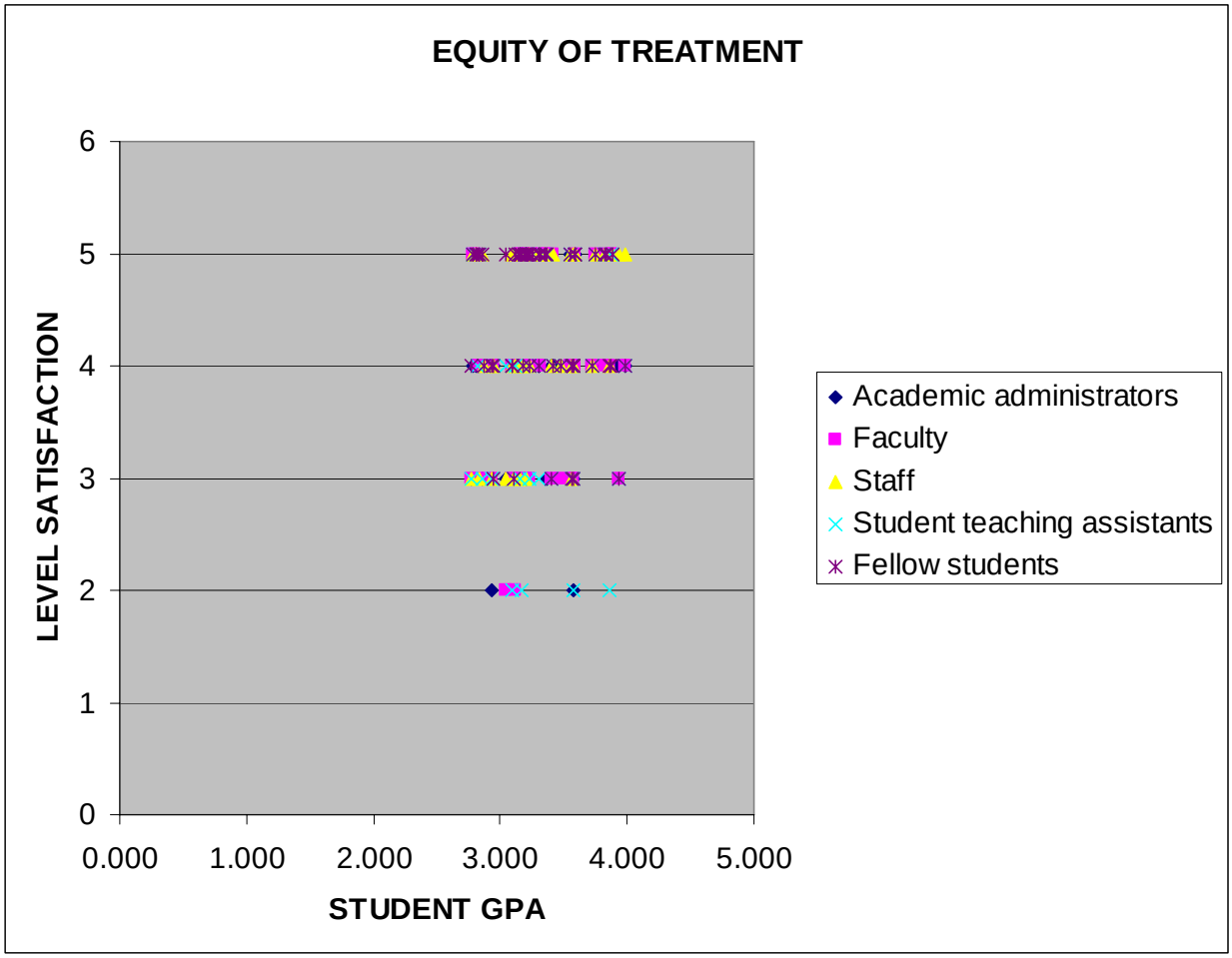

Design and Synthesis
Level of Understanding
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.000
1.000
2.000
3.000
4.000
5.000
Student GPA
Series1


FUNDAMENTALS
LEVEL UNDERSTANDING
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.000
1.000
2.000
3.000
4.000
5.000
STUDENT GPA
Series1


LAB EXPERIENCES
LEVEL UNDERSTANDING
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.000
1.000
2.000
3.000
4.000
5.000
STUDENT GPA
Series1


COMMUNICATIONS
LEVEL UNDERSTANDING
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.000
0.500
1.000
1.500
2.000
2.500
3.000
3.500
4.000
4.500
STUDENT GPA


Quality of Advising
Level of Satisfation
6
5
4
3
2
1
0
0.000
1.000
2.000
3.000
4.000
5.000
Student GPA
Course Planning
Career Planning
Graduate Education


EQUITY OF TREATMENT
LEVEL SATISFACTION
6
5
4
3
2
1
0
0.000
1.000
2.000
3.000
4.000
5.000
STUDENT GPA
Academic administrators
Faculty
Staff
Student teaching assistants
Fellow students