



Preparing Capstone Design Instructors and Project Mentors to Deal with Difficult Students and Problem Teams

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IPPD is an experiential multidisciplinary design program where teams of students complete real projects for sponsoring companies and agencies. Dr. Stanfill has recruited over 300 industry-sponsored projects and directed the efforts of over 1900 senior-level engineering and business students for the IPPD program. In 2003, he helped create the Integrated Technology Ventures (ITV) program and serves as Chair of the ITV Board of Directors. The ITV program exposes students to the realities of technology start-up companies while assisting UF researchers in commercializing their technological innovations. Virtual companies comprised of engineering, business, and law students identify market opportunities, develop business plans, and produce prototype systems. Each ITV team is led by an experienced entrepreneurial CEO and features hands-on guidance from engineering, business, and law faculty.

Prior to joining UF, Dr. Stanfill spent ten years with United Technologies where he designed fighter aircraft gas turbine hardware for Pratt & Whitney, served as a key resource to the Carrier Corporation New Product Development Council Steering Committee, facilitated Design for X (DFx) workshops internationally, developed business process linkages between new product development and lean manufacturing, and developed and implemented manufacturing systems software. His interests include technology transfer, product development, design education, DFx, and entrepreneurship.

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Abstract

Capstone project mentors have a responsibility to facilitate engineering student development toward professional practice. Due to the open-ended nature of the design problems addressed, the frequent use of a team-structure to complete capstone design projects, and the coupling of individual student grades with team outcomes, capstone instructors may be faced with different student/team management challenges than their colleagues who teach traditional lecture-based courses. It is not uncommon for capstone design course instructors, program directors, and team mentors to get involved in resolving team conflicts, counseling team leaders in handling nonproductive team members, and performing damage control on dysfunctional teams.

A workshop and supporting materials was developed in response to a perceived need amongst capstone instructors for a set of protocols and tools to address dysfunctional design team behaviors. The workshop, and a rubric to help identify and act upon problematic capstone design student and team behaviors, was designed to prepare new and veteran instructors to effectively respond to challenging student and problem team situations. The discussion includes implications for engaging various campus counseling and intervention resources, tools available to empower faculty and students to recognize and respond appropriately to some common problem situations, and the creation and delivery of a capstone design instructor workshop for the 2014 Capstone Design Conference.

1. Introduction

Engineering capstone design projects are intended to provide a culminating experience for seniors where they solve a complex, open-ended design challenge that requires the integration of many of the engineering concepts mastered over their undergraduate careers. The students are in their final year of study and are preparing to transition out to the workforce, graduate studies, or to the military or public service.

According to the 2005 comprehensive national survey of capstone design programs conducted by Howe[1], 98% of the 444 engineering programs at the 262 responding institutions (representing about 26% of all programs) included capstone projects as a requirement for graduation. 18% of the respondents indicated that individual projects were part of their program, meaning a large majority of programs include or require team-based projects. Team size varied from one (2%), 1 to 3 (30%), 4 to 6 (60%), and 7 plus (7%). Based upon this data, at least two-thirds of the capstone programs include teams of four or more. Further, 46% of the programs averaged 6 or more projects per course cycle, where projects spanned one semester (43%), two semesters (37%), one quarter (3%) or two or more quarters (8%). One can conclude that there are a large number of capstone project teams of team size four or greater operating nationwide during a given academic year, and a significant number are together for an academic year (2 semesters or 3 quarters).

Students are asked to work on significant, open-ended (perhaps previously unsolved) projects, for a significant amount of time, with teammates that they may or may not have selected—all while balancing other courses and preparing for major life transitions. Felps [2] found that team problem solving is best predicted by the performance of the weakest team member. By the time that students reach the capstone project, one hopes that the technically deficient students have been weeded out and will not participate. There is no guarantee; however, that non-disruptive team members will be assigned to a given project. Students may not be well equipped to deal with disruptive peers. Given that project success (i.e. grades) may be in the hands of someone who is not “playing nice,” tensions and emotions within a team may run very high.

Capstone project mentors often work on a more intimate professional basis with students than their colleagues who teach traditional lecture-based courses. It is not uncommon for capstone design course instructors, program directors, and team mentors to get involved resolving team conflicts, counseling team leaders in handling nonproductive team members, and performing damage control on dysfunctional teams. These situations can have nothing to do with the sophistication and thoroughness of students’ technical training and may involve issues such as the students’ maturity and/or stress levels, the influence of “bad apple” personality types, physical and/or mental health, and drug or alcohol abuse.

Is it possible to prepare capstone course directors or project mentors to help mediate when team troubles arise? Dealing with difficult students and thorny team issues requires practice and can be time consuming. This paper describes the development and delivery of a workshop, associated tools, and case studies to better equip capstone design instructors to deal with difficult students on their design teams.

Given that capstone design courses are designed to be culminating learning experiences for students as they transition to professional practice, how can they be involved in preventing or intervening when peer and/or team behavior deteriorates? This paper also suggests ways of training capstone students to be better prepared to recognize adverse team situations and identify at-risk peers. Depending upon resources available at a given institution, these training courses can be accomplished outside of the capstone classroom.

The concept for the workshop was developed over an impromptu lunch gathering of veteran capstone design instructors in the Exhibition Hall of the 2013 ASEE Annual Conference and Exhibition. The lead author crafted an abstract for such a workshop to be delivered at the 2014 Capstone Design Conference, vetted the concept with those same capstone veterans, and secured the support of the co-author to help in the development and delivery of the workshop. The authors piloted the workshop in May 2014 at the University of Florida Integrated Product and Process Design (IPPD) Program annual retreat with a dozen IPPD faculty project mentors and three undergraduate advisors. The workshop, entitled “I Didn’t Sign Up for This!” was then offered at the 2014 Capstone Design Conference (CDC). Over 70 conference participants attended the workshop and their summarized feedback is discussed.

2. Previous work

The literature includes studies on cooperative learning teams, such as Hsiung [3], where the dysfunctional teams are identified based upon students' academic achievement. Hsiung points out that little work has been done

to examine the problems involved in identifying dysfunctional cooperative learning teams in a reliable and efficient manner. Arguably, research in this field is hampered by the lack of an agreed standard for recognizing dysfunctional teams. In other words, with no clear understanding as to what the term “dysfunctional team” actually means, it is difficult to identify dysfunctional teams with any degree of reliability.

Hsiung suggests that if dysfunctional teams are identified early that “these problems can generally be resolved.” Felder and Brent [4] and Johnson and Johnson [5] identify some key dysfunctional behavior patterns and problems such as “un-involvement” and “taking charge,” while Felps [6] identifies specific bad-apple/team-killer personas such as the *jerk*, the *slacker*, and the *depressive pessimist*.

There are many references on the team formation process. Wilde [7] explores the formation of cognitively diverse teams by following a Jungian approach that focuses on team member information collecting and decision-making preferences. Wilde suggests training approaches for team members to bridge missing cognitive preferences. Oakley et al [8] discuss team formation strategies to improve the performance of teams. Typically these references do not discuss strategies for handling dysfunctional team members.

A Google search of the phrase “dealing with difficult college students” will yield more than 100,000,000 results. The top hits on such a search lead to a number of online resources assembled to assist college instructors (professors, lecturers, and graduate assistants) in dealing with a variety of topics such as disruptive classroom behavior, classroom management, cheating, depression and suicide prevention [9].

While this is cursory literature review, clearly there is a wealth of resources available in the general topic area of dysfunctional teams and problem students. There are also many sources for team formation that are based in some way on personality preferences. From the author's experience, personality-based team formation is only practical in single-disciplined project teams where member technical skillsets are similar and therefore members are somewhat interchangeable. Even with the best intentions, a few challenging team members are bound to show up in any population of teams—even though personalities might be compatible, outside influences such as mental or physical health conditions, course or work load, family issues or other relationship problems may cause teams to break down.

With so much information available, it was hoped that the workshop could provide a filter for capstone instructors to save time in identifying problems and coming up with resolutions. The purpose of the workshop was to share a set of practices in place at University of Florida (UF) to deal with difficult student situations on capstone design teams, to apply these elements to case studies based upon realistic capstone-design-specific scenarios, and to receive some coaching from the authors and other workshop participants on effective strategies for resolution.

3. College Students and Mental Health

Over the last 25 years, the probability of a college student suffering from depression and anxiety has doubled, suicidal ideation has tripled, and sexual assaulted quadrupled [10]. With the intense focus on the rising number of suicides on college campuses, it is becoming critical for faculty and staff to understand what can be done to prevent, identify and how to respond to serious emotional and mental health problems with the students they interact with. In the ACHA-National College Health Assessment survey organized by the American College Health Association, more than 50% of college students reported feeling so depressed that it was difficult for them to function during the past academic year [11]. The ACHA-NCHA provides the largest known comprehensive data set on the health of college students. On the revised survey, new items have been added to capture sleep behaviors, self-injury, the use/abuse of prescription drugs and additional mental health issues. In section H on Mental Health, students reported experiencing the following within the last 12 months:

- Felt things were hopeless (45%)
- Felt overwhelmed by all you had to do (86%)
- Felt lonely (57%)
- Felt very sad (61%)
- Felt overwhelming anxiety (51%)
- Felt so depressed it was difficult to function (31%)
- Felt overwhelming anger (37%)
- Intentionally injured yourself (5.5%)
- Seriously considered suicide (7%)
- Attempted suicide (1.2%)

The statistics make it clear that there are mounting crises on college campuses. Depression, anxiety disorders, and suicide are no longer rare anomalies, they are part of college life. This is the reality of today's college experience. Most faculty and staff would agree that the emotional well-being of students goes hand in hand with their academic development. The mental health crisis on campus affects the individual student, the student body in general and the entire population.

The college institution benefits from strong mental health services. Mental health programs directly influence the reputation and educational rankings of all colleges. They affect an institution's retention and graduations, both very important to the health and vitality of a college community.

To gain a better understanding of how law and policy relate to each other when revolving student emotional/mental issues, some universities are adopting what is known as a "Facilitator University". This viewpoint understands that traditional college students are still developing mentally, physically, and emotionally, as such they are neither children nor fully developed adults. For that reason, the facilitator university needs a special developmental perspective to promote a safe and healthy educational environment. Under this viewpoint, the facilitator university uses judicious care to create conditions under which students will make responsible choices. The facilitator university will aspire to be proactive, not reactive. It will create collaborative risk management teams that will identify risks, evaluate and implement solutions,

and train members of the campus community to act in ways that promote health and safety and also avoid or minimize physical and legal risks. A Facilitator University will provide training for faculty, staff and students to use reasonable care to promote student safety. Programs such as “Working with the Disruptive Student” [12] presented by the university counseling center and At-Risk Kognito [13]—an online training simulation that helps one identify, address and motivates help-seeking by students experiencing emotional distress—are congruent with the Facilitator University philosophy.

But what are the legal responsibilities of faculty when it comes to students with mental health disabilities? Relevant federal laws are Section 504 of the Rehabilitation and ADA[14], therefore faculty must afford students with mental disability the educational opportunity equal to that of other students. ADA protects the confidentiality of a student’s mental health problem, meaning a faculty member is not allowed to ask a student if he/she has a mental health problem.

4. Rubric development

The concept for the Correction Action Rubric for Problematic behaviors is based on the Faculty 911 Guide [15] published by the Dean of Students and the Counseling and Wellness Center (CWC) and a faculty and the aforementioned staff development program titled “Working with disruptive students” presented by the Associate Director of Crisis Emergency Services at the New Faculty orientation every year. The premise is that faculty have an advantage point of being an important resource because they are knowledgeable of students and their particular developmental stage; aware of the stressors that students encounter; serve as representatives of the institutional ethic of care; knowledgeable of the campus organization and resources and can be gatekeepers for intervention and referral to helping resources.

The purpose of the Rubric is to help faculty identify, assess level of distress, and address specific behaviors that represent infractions of the classroom learning culture—provide corrective and formative feedback; work with the student on an individual level; be clear about expectations and consequences; consult with others on how best to constructively address your concerns and offer help; refer the student to campus resources (e.g., Counseling and Wellness Center, Dean of Students, Student Health Services, Academic Advisement); and document your intervention and follow up to encourage the student to utilize resources.

The rubric is provided in the Appendix.

5. Campus resources

Most college campuses have student support services that effectively intervene with distressed students whose impairment has the potential to have negative impact on the student’s academics. A primary purpose of campus resources is to guide faculty, staff and students in identifying, supporting, and intervening with a distressed student. Typical campus resources consist of the following:

- a counseling center that provides counseling, mental health and psychiatric services for the student
- the Dean of Students Office (DSO) that promotes student development and enhances the students' experiences
- the Student Health Care Center that prevents, promotes and provides health care to the campus community
- the Academic Advising Center provides a supportive atmosphere which promotes the educational, career and professional development of the student
- the University Police Department (UPD) that maintains a safe and secure campus.

Each resource plays a vital role in providing support to the faculty, staff and students dealing with students in distress. Most universities would benefit from comprehensive, campus-wide strategic network to adequately provide prevention efforts for faculty, staff and students.

6. Capstone instructor workshop

Given the campus resources available at UF, the authors collaborated over three months to create a capstone instructor workshop to be delivered at the 2014 Capstone Design Conference.

Creation of workshop content and structure

From January 2014 to April 2014, the authors met every three weeks to develop the workshop concept, content and structure. The workshop was designed to share a set of practices and resources available at UF and give the participants a chance to use those tools on real problems. The key to making the workshop memorable was to provide stories of realistic student problems and have the workshop participants work together to generate approaches to resolve the issues, followed by coaching from the authors on the suggested approach. The original concept of using student actors to embody various dysfunctional personas was abandoned after considering the difficulty in logistics involved in coordinating travel schedules. It was determined instead to provide four case studies for teams of participants to work through. At the conclusion of the workshop, the participant teams would share their suggestions for resolving the cases and get feedback from the other participants and the authors.

Table 1 introduces the characters (student personas) and their key characteristics for each of the case studies. Each of these characters were wrapped into a story with a series of prompts following certain developments in the case. Table 2 describes the roles of the typical supporting characters in the case studies. The case studies and support characters are based upon a capstone course featuring multidisciplinary teams of 5 to 6 students, a course manager responsible organizing all the projects and faculty project advisors (coaches). The projects for cases are typical of the industry-provided variety, with each supported by the sponsor company's liaison engineer. Additional characters are introduced in each of the cases to complete the stories.

Table 1. Student personas with characteristics utilized in the case studies

Name	Characteristics
Joe	<ul style="list-style-type: none"> • International student • High performer—usually #1 or #2 in his classes • Wants to obtain a PhD • Formerly a ranked middle weight wrestler • Extremely polite to faculty • Can be aggressive and rude to staff and peers
Gretchen	<ul style="list-style-type: none"> • Non-traditional student, served a tour in the military • Excels in individual work—especially design projects and research • Perfectionist • Difficulty in managing her emotions • Ruminates over issues • High maintenance • Poor time and expectation management skills
Tori	<ul style="list-style-type: none"> • Low self esteem (can look like depression/anxiety symptoms) • Misses deadlines and team meetings without notice • Detached from the team • Low motivation • Poor concentration • Irritable • Overly sensitive to feedback
Bradley	<ul style="list-style-type: none"> • Extremely creative, non-linear thinker • Poor follow through • Non-responsive • Only does the minimum • Poor time management • Hard to keep on task • “Closed on weekends”: low motivation & low commitment to team goals

Table 2. Supporting characters introduced in the case studies

Role	Description
Capstone Course Manager	<ul style="list-style-type: none"> • Recruits and organizes the capstone projects, and leads the classroom instruction • Serves as the executive within the capstone program management structure • Insures capstone program academic goals are met
Faculty Project Advisor	<ul style="list-style-type: none"> • Reports to the Capstone Course Manager • Serves as the mentor (“coach”) and provides technical direction to the project team • Provides primary performance evaluation (grades) for project team members • Insures project goals are met
Team Leader	<ul style="list-style-type: none"> • Appointed by Faculty Project Advisor or elected by peers to lead project team • Delegates work and insures completion of required project and course deliverables
Counseling Center Psychologist	<ul style="list-style-type: none"> • Serves as a key consultative resource for the Capstone Course Manager • Sits in on intervention meetings to insure student mental health is protected

Each case was set up with an introduction, such as the following description of Joe and his project:

Major: Electrical Engineering

GPA: 3.9

Degree Aspiration: Ph.D. in Electrical Engineering from a prestigious institution

Career Aspiration: Tenure-track faculty at a top school

Joe is a member of a 6-person project team developing new concepts for a mechanical subsystem on an automotive engine. His discipline is needed for developing the engine test stand and data acquisition system for the performance monitoring sensor network. Joe and his teammates report to a Faculty Project Advisor and communicate each week with a Liaison Engineer at the company that is supporting the design project. Joe's project is one of many 2-semester projects that are coordinated by the Capstone Course Manager.

A short narrative follows this introduction along with a prompt such as:

Joe has a technical dispute with his management team. How should the Capstone Course Manager advise Joe about preparing for the web conference presentation?

As the case plays out, there is a final prompt, such as:

How would you assess Joe's teamwork skills?

What would you recommend for Joe to do to improve his teamwork?

What options would you outline for Joe given his academic and career aspirations?

The appendix includes the full text of the Joe persona case.

Delivery

The pilot offering of this workshop was delivered in May 2014 during the annual UF IPPD program retreat to a dozen faculty and three staff members and three undergraduate academic advisors. The authors gained confidence that the case studies were realistic as one faculty member was reminded so viscerally of a former student that it took him over an hour to cool down.

A 90-minute version of the workshop was offered to over 70 participants at the CDC 2014 conference held at Ohio State University in June 2014. The workshop participants shared stories of successful and prevented suicides, questioned the authors as if we co-opted the case study personas from their courses, and provided really interesting insights regarding resolutions to several of the cases. For instance, it was pointed out that the Gretchen persona may be such a perfectionist due to experience in the military where missing details could lead to death or dismemberment due to Improvised Explosive Devices.

Results

Following the workshop, the participants were asked to complete a short survey. The survey included the following questions:

1. What elements of the workshop were most effective?
2. What elements of the workshop were least effective?
3. What suggestions do you have for improving the workshop?

Thirteen responded to the survey and the results (all generally positive) are included in the Appendix. Thematic analysis was used to identify and organize the themes from the survey data. The workshop elements that were found to be most effective were the case studies (useful, interactive, and realistic), the rubric (resourceful, knowledgeable, take-home example) and campus resources (knowledgeable). Least effective were the time constraints and the large group sizes. Improvements included suggesting addition of more concrete strategies, inclusion of problematic, non-crisis students, and to allow the participants to read the case studies in advance of the workshop.

As a result of the feedback, the presenters plan to incorporate the following:

- ask the attendees to read the case studies and answer the questions ahead of time
- make sure the small groups discussing the case studies stay small, no more than four participants to foster better discussion in the limited time available
- focus on non-crisis student issues such as low motivation and attention problems.

7. Conclusion and future work

As mentioned in the literature review, identification of dysfunctional teams is challenging, but early identification may lead to better outcomes. Depending on the structure of a particular capstone program, there may be a large student-to-faculty ratio (i.e. one instructor with many self-guided teams) or a small student-to-faculty ratio (i.e. each team has a faculty mentor). Regardless of the particular capstone program's structure, one way to improve the course instructor's ability to identify team problems and head off some common issues that manifest when diverse groups of people work together is to provide some training to students and enlist their help.

Studies have shown diverse teams promote creativity, fosters critical thinking, tend to make better, more thoughtful decisions because they consider a wider range of perspectives. However, the effects of diversity are highly dependent on the presence of facilitating conditions in the organization, in the absence of facilitating conditions (inclusion) the aforementioned outcomes are reversed and the effects of diversity could fuel interpersonal conflicts, reduces group cohesion, and slow the pace of working or learning. According to a 2011 Forbes Insight report, "321 companies with more than \$500 million in revenue, 85% agree or strongly agree that diversity is key to driving innovation in the workplace." [16]

Because many students have not had the social background or experience of living and working in diverse communities and organizations, and thus do not have the multicultural competencies required for life in a diverse and socially just organization, it is recommended all participants in

the capstone program complete the following training to increase their cultural competence and awareness in identifying peers that are at-risk:

- How to prevent sexual harassment. Such a course helps students identify and articulate inappropriate patterns of behavior and cite specific regulations and laws that govern acceptable behavior.
- Diversity in the workplace. Such a course helps establish expected workplace behavioral norms and provides those who may be discriminated against with effective strategies for confronting inappropriate behavior.
- Identification of at-risk students. Such a course helps peers identify behavioral cues that may be signs of depression and/or contemplation of suicide, provides tips for interacting with at-risk peers, and directs the students to the appropriate reporting venues and resources.

Many campuses already have either instructor-led or computer-based training for these topics as part of their workforce development training. At UF, these sexual harassment and at-risk student courses are available online and therefore can be completed outside of normal class hours. The diversity course at UF is offered in a small classroom setting with a trained facilitator. Presently the course does not scale up well to a large capstone program, but the perceived value is quite high. Students successfully completing these courses at UF earn a certificate that can be uploaded to a course management system. If these training topics are essential for professionals, then why not include them for your students?

Regular peer evaluations are also essential. Kaufman et al [17] and Marin-Garcia and Lloret [18] discuss accounting for individual effort and the effects of assessment on team performance. In the author's experience three peer reviews per term allows the instructor get anonymous feedback and head off potential problems identified in the first and second assessments. Online resources, such as CATME [19], provide invaluable tools for identifying a variety of performance issues.

Lastly, depending upon whom you choose to engage within your campus for assistance when dealing with a dysfunctional team member, you may or may not be able to participate in the remediation process or get updates on the student's progress. Students referred to counseling centers are under privacy governed by HIPPA, and therefore the records are treated like any other private medical record. If the student is referred to the DSO, then the student's record is governed under FERPA. FERPA deals with privacy of student records and since instructors are part of the student's academic program, the instructor may fully participate in the resolution process.

The authors intend to continue refining the workshop content. Additional case studies will be added and the current cases will be streamlined so that workshop participants can complete multiple cases. Ultimately, the workshop and case studies will be made available as an online resource for faculty and students.

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8. Appendix

Rubric

Red	Corrective Action	Orange	Corrective Action	Yellow	Corrective Action
<ul style="list-style-type: none"> Verbal threats Physical threats Suicidal thoughts Homicidal thoughts Loss touch w/ reality 	<ul style="list-style-type: none"> Call UPD/911 Call UPD/911 Consult w/ UCC Consult w/ UCC Consult w/ UCC 	<ul style="list-style-type: none"> Bizarre behavior Bizarre communication Disruptive to learning environment 	<ul style="list-style-type: none"> Consult with Dean of Students/Counseling Ctr. Consult with Dean of Students/Counseling Ctr. If Safety is not a concern attempt to deescalate 	<ul style="list-style-type: none"> Depressed student Highly anxious student Difficulties in interacting w/ others 	<ul style="list-style-type: none"> Avoid Offering confidentiality should s/he wish to talk; consult w/Counseling Ctr. Deal directly w/the behavior according to the protocol; provide corrective feedback and offer to help
<ul style="list-style-type: none"> Student demonstrates insubordination/ disrespect toward team leader, staff project liaison or coach 	<ul style="list-style-type: none"> Deal directly w/the behavior Provide corrective feedback and report to supervisor 	<ul style="list-style-type: none"> Stalking behaviors Group conflict Confrontational team member Student loses engagement w/ team/coach Student refuses to produce deliverables 	<ul style="list-style-type: none"> Notify Dean of Students or UPD Deal directly w/the behavior according to the protocol; provide corrective feedback and offer to help 	<ul style="list-style-type: none"> Marked changes in academic performance Tardiness/excessive absences Withdrawal/ avoidance from participation Repeated requests for special considerations Student doesn't return equipment/ material 	<ul style="list-style-type: none"> Address the situation on an individual level

UCC = Univ. Counseling Center
 UPD = Univ. Police Dept.
 DSO = Dean of Students Office

Difficult to deal with student profiles

Joe

Joe

- International student
- High performer—usually #1 or #2 in his classes
- Wants to obtain a PhD
- Formerly a ranked middle weight wrestler
- Extremely polite to faculty
- Can be aggressive and rude to staff and peers

Major: Electrical Engineering

GPA: 3.9

Degree Aspiration: Ph.D. in Electrical Engineering from a prestigious institution

Career Aspiration: Tenure-track faculty at a top school

Joe is a member of a 6-person project team developing new concepts for a mechanical subsystem on an automotive engine. His discipline is needed for developing the engine test stand and data acquisition system for the performance monitoring sensor network. Joe and his teammates report to a Faculty Project Advisor and communicate each week with a Liaison Engineer at the company that is supporting the design project. Joe's project is one of many 2-semester projects that are coordinated by the Capstone Course Manager.

Visits to the Capstone Course Manager

About halfway through the 16-week first semester, Joe and one of his teammates separately visit the Capstone Course Manager seeking advice.

Joe

Joe has been given the task of selecting a large stepper motor and controller capable of running the automotive engine at variable speeds up to 6000 rpm (for safety and precise speed control, the engine will be driven by the motor rather than relying on spark ignition). Through Joe's research, he believes the required motor power is much less than the power requirements specified by the Liaison Engineer. The cost of the smaller motor is several thousand dollars less

than the fully rated motor that meets the Liaison Engineer's specification. Joe's Faculty Project Advisor agrees with the Liaison Engineer.

Joe is visiting the Capstone Course Manager to get advice on how to present his findings that the lower powered motor will be adequate and significantly reduce the impact on the project budget. In two days, Joe is scheduled to present his recommendations at a team meeting with the Advisor and Liaison (the Liaison is participating via web conference). Joe comes across as charming, calm and extremely polite—waiting to sit until invited to do so.

Joe has a technical dispute with his management team. How should the Capstone Course Manager advise Joe about preparing for the web conference presentation?

Joe is advised to boil his findings down into a decision matrix with key selection criteria and a short justification narrative.

Marsha, Team Leader

Marsha is a non-traditional student, returning to school after a 10-year technical career where she gained project management experience and exposure to company policies on workplace behavior. She is the team leader for Joe's project team. Marsha reports that on several occasions, when the Faculty Project Advisor is not present, Joe has shouted at her over differences of opinion regarding course and project work products. Marsha says she has kept her cool during these encounters, but clearly is not happy about these situations. She has been keeping a log of these outbursts, something she learned from her previous training. One male teammate has indicated to Marsha that he will intervene should Joe's aggressive behavior continue. Marsha believes Joe's behavior is impacting the productivity of the team. She feels that Joe does not respect her contributions to the project.

How should the Capstone Course Manager advise Marsha?

What actions should be taken?

In this case, all of Joe's team members were interviewed. Three of four members were able to corroborate Marsha's report and concerns. One member was not aware of the problems, having never overheard Joe's outbursts. All team members praised Joe's technical contributions up to that point.

Joe, Post-web conference

The web conference didn't go well for Joe. During his report on the motor selection, in Joe's words, "my coach (AKA Faculty Project Advisor) shut me down. I didn't get to finish my justification and my recommendation was rejected." Joe left the meeting early. He is very upset and indicates that he was embarrassed in front of his peers and superiors. Joe is looking for advice on how to continue on a project where his ideas will be criticized and rejected.

How should the Capstone Course Manager advise Joe?

What actions should be taken?

In this case, the Faculty Project Advisor was contacted to obtain his perspective on the web conference. The Advisor indicates that Joe did not have his report organized very well—starting with many details before building up to a recommendation. "I asked Joe for the bottom line recommendation, and he kept diving into non-productive details. We had many items to accomplish that day and after 10 minutes of rambling, I finally had to cut him off."

During the two weeks following the web conference, Joe does not participate in team activities and stops producing deliverables assigned to him.

How would you assess this situation?

What is the rating (use the rubric)?

What questions should you be asking yourself if you were in the role of
Faculty Project Advisor?

Capstone Course Manager?

Student Team Member?

What actions should be taken?

Professionalism Committee Intervention

Given that Joe seems to have “checked out” of the project and there are corroborated statements regarding his angry outbursts directed at a female teammate, an intervention is clearly needed. You have been asked to join a committee to review Joe’s performance and behavior, and ultimately make a recommendation for Joe that might include sanctions and corrective actions.

Committee members:

1. Capstone Course Manager (“I have interviewed all the stakeholders. Joe has been aggressive with a team member (shouting) and has stopped working on the project over a technical dispute and subsequent incident during a report to the Liaison Engineer where he was cut off by the Advisor for not getting his recommendation across.”)
2. EE professor (“Joe was in my class and was always challenging me with his ideas. He was the top student. He indicated to me that he wants to get a Ph.D. Although I have never had a problem with Joe, one of my colleagues indicated that Joe yelled at his TA over a perceived grading error on an extra-credit assignment. I understand that the Advising staff have had incidents where Joe has shouted at them when he couldn’t get his way.”)
3. Faculty Project Advisor (“Joe hasn’t done anything for the past two weeks. Even if he gets his act together and contributes for the balance of the semester, there is no way I could give him a grade higher than a B. He would really have to have superior results to earn that B.”)
4. ME professor (“I’ve never met Joe. I do advise lots of student projects.”)
5. Counseling Center Psychologist (“I do not know Joe. I am here to provide a mental health perspective and insure that the student is protected.”)
6. Student representative (“I am a law student and have worked with the Honor Court in the past. I am here to make sure the student’s rights are protected.”)

Joe is very polite with the committee members and answers all their questions...

How would you assess Joe's teamwork skills?

What would you recommend for Joe to do to improve his teamwork?

What options would you outline for Joe given his academic and career aspirations?

Workshop Survey Initial Report

Last Modified: 06/05/2014

1. What elements of the workshop were most effective?

Text Response

The case studies provided were very useful.

The examples of the difficult cases.

The case analyses using the threat assessment rubric, along with a back-stage look at reporting procedure.

I was really impressed with your preparation for the workshop. The folder and materials are excellent and I will plan to use them, if necessary. I am also more prepared to be sensitive to students' challenges outside of school that may be interfering with their schoolwork and performance.

Breakout was good

It was good to hear that others have very similar challenges and student issues. I appreciated hearing the perspective of someone with a counseling/mental health background. The folder printed with information and resources is a great idea

The rubric with who to go to for help was excellent

* Reading and discussing the case studies in small groups. * Handouts and very useful folder!

Risk level chart; case studies

Definitely the resources that were provided (handouts, etc). I was happy to bring those home and will plan to use them in our department as guidelines.

Guidelines and general discussion

Letting me know what I didn't know! ie. Find out what services are available on my campus and determine their numbers.

discussion at the tables...

Statistic	Value
Total Responses	13

2. What elements of the workshop were least effective?

Text Response

None - very effective use of time.

Lack of examples on how to talk (when required) to difficult students.

Materials were good for a baseline, but role acted examples of representative behaviors would have been better assimilated, at least by me. Discussion times were tight for 8 people.

Probably a little too much time spent on scenarios (which were VERY realistic and helpful by the way).

There was a lot of time spent talking about problems, but I was hoping to learn some specific strategies for dealing with problem students and teams.

Having the 'solution' right below the questions limited the discussion somewhat

* Trying to catch up with the other case studies my group didn't discuss during the report-out portion.

Our groups were a bit too large to make sure everyone's opinion was heard during the group exercise. We also had limited time to discuss, so I think some great ideas may have fallen through the cracks.

assigned seating

It was unfortunately at the end of the day so everyone was a bit tired but I can't think of anything that wasn't effective.

Statistic	Value
Total Responses	10

3. What suggestions do you have for improving the workshop?

Text Response

It will be good to ask the attendees to read the assignment ahead of time to reflect upon the issues. We could all identify each of those characters in our classes over the years.

Concentrate on how to effectively handle cases that don't require the counseling center

The anecdotes shared were powerful. Integrate them as a reference for later review. Collect more. Bar [REDACTED] from verbal coupes d'etats.

It might be helpful to open it up to the entire group about some of the challenges faced with difficult students and issues. There was a lot of experience in the room that together we could learn from.

It was not exactly what I expected. It was good for "crisis" types. I had hoped for more dialog and suggestions for the much higher percentage "Yellow" type issues - for which I have 6-10 every semester.

This workshop should definitely be repeated, but it would be good to have some case studies showing successful (and perhaps unsuccessful) interventions.

A little tweaking to how the case studies were laid out.

Overall - thanks for a great job! Would it be possible to create shorter/abridged versions of these cases so each group could work through all the different ones before the report out stage?

It would help if more of the time was spent on the very common problems of team conflict and ineffective team functioning, separate from serious mental health concerns.

A few recommendations: shortening the number of questions that needed answered during the exercise so participants do not feel rushed, extending the amount of time to complete the exercise and/or creating smaller groups to help foster better discussion in the limited time available.

not broken does not need fixing

smaller groups, role playing to help practice how to deal with particular situations.

A couple of the faculty who attended recommended to me that the session should include tips on motivating students to do well. That's where they have the most difficulty.

Statistic	Value
Total Responses	13