

Introduction

Duke encourages student collaboration with industry. Pratt's Master of Engineering Management Program (MEMP) fosters such collaboration through practicums, internships, seminars, and workshops. One example of industry collaboration and an opportunity to build team-based experiences is the Consulting Practicum Program (CPP) offered via EGRMGMT 556. *Since 2005, Duke students have completed well over 100 CPP projects for Fortune 1000, Unicorn, and other sponsors including Amazon, Apttus, BloomEnergy, Carbon3D, Cisco, Citrix, Cyngn, Deutsche Bank, Fanatics, GSK, Groupon, Hill-Rom, IBM, Kabbage, Lenovo, Microsoft, NetApp, Nokia, Parsons, Planet, PlyGem, Square, TIAA, and Verizon.*

The CPP gives students the opportunity to work on real-world consulting projects acquired from industry. Modeling the CPP like a management consulting firm, a faculty "partner" selects 3-6 student "consultants" per project through an online application process. Selected students are responsible for all project planning, execution, management, and client interactions. Students have regular teleconferences (or meetings) with industrial sponsors to review project progress. Each project culminates in a final presentation to industry executives along with the delivery of a professional-grade report. From project plans to PERT charts, the CPP provides a window into how a real consulting team would execute a successful project with industry.

Identifying cutting-edge needs that are of importance to industry sponsors is the leading criterion for harvesting CPP projects. As in industry, final project success is measured by client satisfaction and results, not merely activity. Other keys to program success include Duke's utilization of seasoned industry veterans as project mentors who understand the balance of providing guidance while letting students find their own path forward. CPP projects often have no single "right answer." Students sometimes struggle with the inherent ambiguity and open-ended nature of such projects, which leads to many teachable moments. Each project is uniquely challenging. The CPP contributes to creating "business-savvy engineers" – a key goal of the MEMP.

Practicum Structure

Each practicum is managed as a professional consulting engagement as follows:

- ❖ **Project roles & team selection:** A faculty "partner" selects 3-6 student "consultants" from a highly competitive applicant pool based upon student fit with and affinity for each project.
- ❖ **RFP & proposal response:** The project description constitutes a "request for proposal" by the sponsor "client." After an exploratory meeting, consultants often respond with a proposal (e.g., scope, deliverables, schedule, budget, etc.). After proposal refinement and client acceptance, the engagement officially starts.
- ❖ **Project team responsibilities:** The student "consultants" are responsible for project execution, management, interactions with the client, and overall project success. The "partner" then hands responsibility over to a seasoned project "mentor" selected to coach each team and seek regular updates, serve as a strategic advisor, and aid with strategic relationship management of the client.
- ❖ **Team meetings & client interactions:** The student team meets twice per week as a group. A 1.25 hour "mentor meeting" (scheduled before semester begins) allows the project mentor to offer advice. A 1.25 hour "student meeting" (scheduled after each team is assembled) enables teams to make decisions and get work done. Client teleconferences (held during mentor meetings, student meetings, or separate times) are scheduled at some frequency during the project (often occurring every 1-2 weeks) for updates and feedback.
- ❖ **Final deliverables:** The project culminates in a one-hour final presentation, industry-quality report, and rich Q&A session with client executives to discuss recommendations – typically via videoconference.
- ❖ **Definition of success:** Client satisfaction is the prime objective and success metric. Again, as in any professional setting, success is based upon results, not activity alone.

Is a Practicum Right for You?

Students often ask whether or not they should apply for a practicum course during their MEM experience. Only you can judge if a practicum course is right for you given your career interests and unique situation. In general, however, practicum courses have the following pros and cons from the student perspective. Some cons may be pros to you (or vice versa) depending upon a given student's personal preferences.

PRACTICUM PROS / ADVANTAGES

- ❖ **Real-world experience:** Work on a real project that matters to industry and provides an impressive resume bullet. Even if you have job experience, show that you have a fresh experience in perhaps a new industry if you seek to expand career opportunities. The CPP is viable for MEM, Meng, or other interested students.
- ❖ **Sponsor & mentor interactions:** Interact with industry contacts (e.g., weekly or bi-weekly teleconferences are typical) for networking and exposure.
- ❖ **Team & leadership experience:** Exercise teaming skills and leadership (even if only by example) within a group of peers (often far more difficult and more common than leading from a supervisory position).
- ❖ **Resumé and interview material:** Gain a strong team-based experience with industry that can differentiate you during your future job search (since team-based experience questions are common in job interviews).
- ❖ **Consulting exposure:** Learn what it is like to work on a consulting project (e.g., collaborating with a client on scope development, proposal writing, client and team management, working through team ups and downs, deliverable generation, presentation to executives, and executing/managing the process throughout).

PRACTICUM CONS / CHALLENGES

- ❖ **No traditional lecture & mentor is a resource, not your boss:** The project mentor provides guidance and advice but does not transfer knowledge through a lecture as in a more traditional course. *The mentor is not your boss – the student team must take responsibility for project success (or failure).*
- ❖ **Challenges of ambiguity:** One objective of a practicum is to force you to consider not only how to solve an industry problem, but also how to properly define the project scope upfront (and then continue to shape it throughout the semester). The faculty and sponsor mentors set bounds and provide guidance, but do not just tell you what to do. Some students flourish in dealing with ambiguity while others struggle.
- ❖ **Learning proportional to investment & level of expectation:** While this is the case for any course, *you will “reap what you sow” in terms of time invested in any practicum-based course.* One rule of thumb is that people often say that a student should invest 4 hours per credit hour per week when taking a college course (includes in-lecture time, or in this case, meetings). This implies investing 12 hours per week for a 3-credit course. Sometimes, students will invest less time and still come away feeling that they had learned something. Investing significantly less time in a practicum course may lead to poor-quality deliverables and an unhappy sponsor which is deleterious to your grade and, more importantly, to your overall educational experience and personal reputation. *Sponsors typically have very high expectations regarding work quality which can only be achieved with a reasonable and intelligently applied time investment.*
- ❖ **Less crucial if already have substantial work experience:** While all students can unquestionably profit from a practicum, some of the pros listed may be less critical if you have significant work experience. *If you do not have good project-related experiences on your resume (or you wish to show experiences that are different from your existing internship or work experiences), then a practicum may well be a very good choice. Job interviews are much richer when you can draw from team-based project examples.*

Key Dates

Key Events	Deadlines/Dates	Comments
<i>App. deadline</i>	1:00 PM, Sat. 08/31	Complete the online application by the deadline provided (see Web link in "How to Apply" section below).
<i>Teams announced</i>	7:00 PM, Sun. 09/01	Teams will be announced via e-mail to all applicants. Decisions are final (i.e., non-negotiable). <u>Once these teams are announced, directions on how to register for the appropriate course section online via Duke's ACES/STORM will be provided (permission codes will not be distributed until the orientation session or shortly thereafter).</u>
<i>Orientation session</i>	3:00-4:30 PM, Mon. 09/02 (Room To Be Announced)	A joint orientation session will be held with all practicum teams to set course expectations and answer questions (general topics - not discussion about the specifics of each separate project). In the closing portion of the session, each team will meet briefly to foster relationship building and coordination.
<i>First mentor session</i>	Week of 09/02 (times vary per project)	The first "mentor session" for each project will be held during the week listed unless otherwise noted by your mentor (see the tables on the following pages for "actual" mentor-meeting times). <u>Class times for EGRMGMT 556 sections in ACES/STORM should be ignored, for now. Times will be finalized in ACES/STORM by the orientation date.</u>
<i>Final presentation</i>	To Be Announced	Occurs around the last week in November or early December. Students / sponsors will schedule early in the project. May be conducted by sponsors visiting Duke, students visiting the sponsor, or via videoconference or teleconference.

How to Apply

Students can only participate in **one** CPP project per semester (**for course credit only - no audits or sit-ins are allowed**). However, students are often interested in multiple projects and would participate on another team if not selected for their first choice. *To streamline the application process, a single online application (<https://duke-mem-cpp-app-fall-2019.questionpro.com>) is utilized so that interested students can submit one application that will place them in consideration for multiple projects at once.* As part of the application, students rate their "project preferences" to guide the selection committee as we finalize team rosters. For example, if a student were only interested in practicum project X, then the student would rate X as their #1 preference in their application and then select "None" for all remaining projects. If a student were interested in all of the projects to some extent, then the student would rank all projects in order of preference. Text boxes are provided so that one can provide extra comments, if needed, to help the selection committee to better understand your preferences beyond each ranking alone.

What If You Are Not Selected

Like applying for a job, the number of practicum applicants sometimes exceeds the positions available. If a student is not selected to participate on a team, the student should not view this as a sign of inadequacy or error. Simply apply for a practicum next semester or seek other practicum-like opportunities that exist elsewhere during your MEM experience. Remember that you cannot negotiate – our selection decisions are final.

Practicum Project Options

We are again thrilled with the quality and variety of practicum projects this semester! The following tables provide an overview of each project. No additional information will be made available for you to make your project selections (the information provided is sufficient), so please **do not** contact the sponsors for more information since that would disrupt their work and, as you will learn, we respect each sponsor's time to the utmost extent. Each project will have two mandatory class sessions per week. One "mentor session" will be attended by your project mentor who will serve as your supervisor and coach throughout the semester; the anticipated time for this proposed "mentor session" is listed in the table. Once teams are selected, team members will compare schedules and select a second session (aka "student session"), and communicate that selection to the project mentor. Since the project mentor will typically not attend the "student session," we allow students to schedule this session as a team to be flexible. *Please do not create anxiety for yourself over prioritizing practicum opportunities - every project provides invaluable experience!*