Course Outline

1. COURSE INFORMATION

Session Offered	Winter 2019
Course Name	Project Management
Course Code	GEN TECH 4PM3
Date(s) and Time(s) of lectures	Fridays during the Winter academic term 2019
Program Name	Civil Engineering Infrastructure Technology / Software Engineering Technology / Energy Engineering Technologies / Manufacturing Engineering Technology
Description	Introduction to best practice in project management including the use of planning, software and people management.
Instructor(s)	Dr. Nahed Ghbn, PMP	E-Mail: ghbnn@mcmaster.ca Office Hours & Location: The best way to obtain lengthy feedback is to see me at the end of each lecture. If there are questions, I will stay up to an hour after the lecture to respond to questions on a first come, first serve basis. If there a lot of questions, I reserve the right to "triage" them based on my assessment of how urgent and well served by other sources they are.

2. COURSE SPECIFICS

Course Description			

Instruction Type	**Code**	**Type**	**Hours per term**
	C	Classroom instruction	6
	L	Laboratory, workshop or fieldwork	
	T	Tutorial	
	DE	Distance education	33
		Total Hours	**Total Hours**

Resources	**ISBN**	**Textbook Title & Edition**	**Author & Publisher**
	ISBN: 9781628253825	A Guide to the Project Management Body of Knowledge (PMBOK® Guide) — Sixth Edition, Published 2017	Project Management Institute
	Support: 978-1118022276	Project Management: A Systems Approach to Planning, Scheduling, and Controlling (11th Edition), Published 2013.	Harold Kerzner
	Other Supplies	**Source**	

Prerequisite(s)	None
Corequisite(s)	None
Antirequisite(s)	None

Course Specific Policies	This course will be using a range of software. Students should be aware that when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

Student Expectations

Expectations of the student are broadly defined as follows:

1. Prepare for class, read the course materials before the lectures, attend and participate in classroom discussion. Students accept responsibility for their learning in this blended course by having examined the weekly course materials (reading, introductory video, weekly tutorial materials) in preparation for an online tutorial. The course agenda and assignment schedule have been structured such that each class builds on things learned previously.
2. Group work is required in this course; such collaborative work is mandatory.
3. Complete the two reports of the group assignments, and submit them on time to the Dropbox on A2L.
4. Attend the final presentation.
5. Share practical experience and considerations with the class. This is a course directed at providing practical training to students either already employed in, or soon to be employed in, technical work. As such, much of the learning will come from understanding and contrast the experience of different people in different industries and situations. Please share your experiences with the class when you think these are relevant to illustrating the tools or concepts being discussed.

Classroom lectures are meant to guide your readings and assignment work and to tie these into a consolidated package. The bulk of your learning will happen outside the classroom.

Attendance/Participation

I appreciate that most of you have busy work and family schedules and that sometimes attendance may be a challenge. That having been said, we have packed lecture and assignment plans, so regular attendance is important both to your results and to your contributions in class. In particular:

a. The lectures will draw extensively from materials available on Avenue, but I think you will find that the lectures are important to understanding how things hang together, as well as to gaining practical insights from me and other class members.
b. We will be going through at least one Worked Example most weeks. These are directly relevant to the marked group assignments and will greatly decrease your effort on these.

	Class Participation Project management is not physics. It does not consist of independently true "facts" or theory that can be studied and understood independently. At best, it is an "applied science," and more likely it is a framework for organizing experiences of how projects are properly functioning, and some commonly accepted tools and vocabulary for implementing that framework. It means the more real-world experience that can be used to illustrate the concepts involved the better. All assignments must be submitted in two Reports and must be submitted to the Dropbox on Avenue to Learn in a compiled one single file using the following formats: Microsoft Word document (.doc, .docx), or Text PDF (.pdf). Group participation is mandatory. All students must attend and participate in group presentations.
Departmental Policies	Students must maintain a GPA of 3.5/12 to continue in the program. In order to achieve the required learning objectives, on average, B.Tech. students can expect to do at least 3 hours of "out-of-class" work for every scheduled hour in class. "Out-of-class" work includes reading, research, assignments and preparation for tests and examinations. Where group work is indicated in the course outline, such collaborative work is mandatory. The use of cell phones, iPods, laptops and other personal electronic devices are prohibited from the classroom during the class time, unless the instructor makes an explicit exception. Announcements made in class or placed on Avenue are considered to have been communicated to all students including those individuals that are not in class. Instructor has the right to submit work to software to identify plagiarism.

3. SUB TOPIC(S)		
Week 1	Course Introduction: • Introductions • Course Outline Review • Course Administration Project Management Framework: • The Project as a Process • The Role of Projects within an Organization • The Project Life Cycle • The Project Management Life Cycle • Project Management Constraints Project Selection Methods Project finance and selection: Analysis and concepts (PV, NPV, IRR, Payback, etc.)	
Week 2	Organizational Context • Project environment (internal & external) • Typical enterprise program management organizations: Functional, Matrix, and Projectized organizational structure • PMO formation and roles	

	• Critical Stakeholder roles: project management; functional management; sponsors; project team
	Project Integration Management:
	   • Develop project charter
	   • Develop a project management plan
	   • Direct and manage project execution
	   • Manage project knowledge
	   • Monitor and control project work
	   • Perform integrated change control
	Close project phase	

Week 3	Scope and Requirements Management:
	   • Requirements Management
	   • Define Scope
	   • Create WBS
	   • Scope Verification
	   • Control Scope	

Week 4	Schedule Management
	   • Time Management: More than "Scheduling."
	   • Define Activity
	   • Activity Sequencing
	   • Activity Duration Estimating
	   • Schedule Development
	   • Schedule Control
	Schedule Development Software Project	

Week 5	Project Cost Management
	   • Types of Costs: Direct vs. Indirect; Overhead; Recurring vs. Non-recurring
	   • Cost Estimating
	     o Types and Purposes of Estimates
	     o Estimating Methods
	     o The Estimating Process
	   • Cost Budgeting
	     o Budget Allocation and concepts: work packages/planning packages, allocated/unallocated budgets, management reserve
	     o Cost Baseline
	     o Budget, Control Accounts, and Work Authorization
	   • Cost Control
	     o Project Cost Accounting and integration within the Enterprise: Cost Accounts, links to enterprise accounting
	     o Cost Forecasting:
	   • Cost Control and Reporting: Variance Reporting, Intro to EV analysis
	Cost Development Software	

Report (1) Assignment	Due in week 6	

Week 6	Project Quality Management
	   • Quality Management Introduction
	   • Costs of Quality and the Project Life Cycle	

	• Plan Quality:
	    o Assessment of Critical-to-Quality items
	    o Designing in Quality: Six Sigma Concepts
	• Manage Quality/ Quality Assurance:
	    o Methods of Assuring Quality: Project Management and Design Reviews, Product Verification and Validation
	• Control Quality:
	    o Measures of project quality
	Dealing with non-conformances: definition of root cause and corrective action; documentation, conformance and non-conformance	

Mid-term Recess: Monday, February 18 to Sunday, February 24, 2019		

Week 8	Project Resources Management
	• Resource Planning
	• Resource Estimating
	    o Resource planning: Responsibilities Allocation Matrix (RAM); Resource Histogram; Org Chart
	    o Acquire the Project Team
	    o Allocation of functional resources
	    o Use of resources
	• Developing the program team: Forming; Storming; Norming; Performing
	• Managing the Project Team
	    o Introduction to team management concepts: team maturity; situational leadership; war room
	    o Managing Diversity: functional; ethnic; national
	Challenges of Virtual Teams	

Week 9	Project Stakeholder Management
	• Identify, analyze and manage stakeholders
	• Plan and control stakeholder management
	Project Communications Management
	• Communications Planning
	    o Intra-team communications: formats; distribution requirements
	    o External communication: Chain of command; communications channels definitions
	• Typical communications methods (memo's, e-mail, action lists, network directory, Web-enabled communications/shareware)
	• Team meetings: planning, attendance, agenda/notification, conduct, follow-up (action item lists)
	• Management reviews: typical management review requirements
	• Program archiving and closure: lessons learned; archiving	

Week 10	Risk Management
	• Definition of risk: probability x impact; types of risk; expected monetary value
	• Risk management process: Identification; Assessment; Mitigation Planning; Control
	• Risk Identification
	   ○ Use of Risk Breakdown Structure for brainstorming and reporting
	   ○ Risk ID tools: SWOT; Fishbone; Decision Tree
	• Risk Qualitative Analysis
	   ○ Probability/Impact Matrix - use of scoring guides
	   ○ Risk Scoring/Prioritization - Top Risks
	• Risk Quantitative analysis
	   ○ Risk Assessment Tools
	• Risk Response Planning
	   ○ Techniques: Avoid; Transfer; Mitigate; Accept
	• Implement Risk Responses
	• Risk Monitoring and Control
	The risk management plan - risk planning Periodic review	

Week 11	Procurement and Contracts Management
	• Role of the program manager in contract and subcontract management
	• Introduction to Contracts: Characteristics; Contract Forms and Purposes; Typical Contract Format
	• Contracts Management
	• Procurement Management
	   ○ The Procurement Process
	   ○ The Make-or-Buy Decision
	• Procurement Planning
	• RFP preparation
	• Subcontract Management Considerations: Selection; Monitoring; Change Control
	Contract Control	

Report (2) Assignment	Due in week 12	
Week 12	Program Management Integration: Managing through the Project Life Cycle • Pre-project activities: projects and company strategy; project selection; proposal support • Kicking off the project • Changing roles of the project manager throughout the project • Controlling and monitoring work • Managing project changes: contract changes; baseline changes; technical changes and configuration management • Compliance Matrices • WBS, Responsibilities Allocation Matrix, Cost	

	Account Structure
	• Quality Development
	• Risk Management Plan
	• Controlling and monitoring risk through the life cycle: Technical and Phase Gate reviews
	Program Closure
	Project Management Review:
	• Project life cycle; the project management organization
	• 10 main aspects of project management: Scope; Cost; Time; Quality; Risk; Communications; Resource; Contracts/Procurement & Integration
	• Primary program management controls, plans and deliverables
	• Change management
	• Program control and management through the life cycle
	Questions
Week 13	Project Team Presentations Presentations of the Group project and related documents developed throughout the course. **Presentations will be in-campus**	

Classes end: Tuesday, April 9, 2019
Final examination period: Thursday, April 11 to Monday, April 29, 2019
All examinations MUST be written during the scheduled examination period.

Note that this structure represents a plan and is subject to adjustment term by term.
The instructor and the University reserve the right to modify elements of the course during the term. The University may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes.

4. ASSESSMENT OF LEARNING *including dates*		**Weight**
Assignments		30%
Report (1) Assignment, due on the day of Lecture # 6	15%	
Report (2) Assignment, due on the day of Lecture # 12	15%	
Project Presentation		10%
Class Quizzes		10%
Final examination (tests cumulative knowledge)		50%
	TOTAL	**100%**

Percentage grades will be converted to letter grades and grade points per the University calendar.

5. LEARNING OUTCOMES

1. Define, discuss and analyze the concepts of project management and related topics.
2. Illustrate the significance of (performance, cost, time and scope) as targets of a project to be accomplished.
3. Apply methods used to manage the eight aspects critical to program implementation: scope; schedule; cost; quality; risk; communications; human resources, contracts/sub-contracts and integration.
4. Analyze and test the characteristics of the project components, project management processes and knowledge areas in creative and organized way.
5. Integrate the different aspects of project management and various forms project organizations

	into phases of a well-managed project.
6.	Learn enhanced communication skills and work as a team, adapt the message to the listener or group, facilitate an open exchange of ideas.
7.	Produce typical project management deliverables and tools, (WBS, SOW compliance matrix, GANTT chart, etc.), use project management software.
8.	Create project management case studies and share them with the Class.
9.	Illustrate the link between the tasks of project management and people's attitude to work, teamwork, conflict handling, problem solving, decision making and sustainable project implementation methods.
10.	Apply project management concepts by working on a group project as team leader or active team member.

6. POLICIES

Anti-Discrimination

The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as soon as possible.

http://www.mcmaster.ca/policy/General/HR/Discrimination_Harassment_Sexual_Harassment-Prevention&Response.pdf

Academic Integrity

You are required to exhibit honestly and use ethical behaviour in all aspects if the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act of fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, located at: http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf .

The following illustrates only three forms of academic dishonesty:
1. Plagiarism. E.g. the submission of work that is not own or for which other credit has been obtained
2. Improper collaboration in group work
3. Copying or using unauthorized aids in tests and examinations.

Requests for Relief for Missed Academic Term Work (Assignments, Mid-Terms, etc.)

The McMaster Student Absence Form is an on-line self-reporting tool for Undergraduate Students to report absences for:

1) Relief for missed academic work worth less than 25% of the final grade resulting from medical or personal situations lasting up to three calendar days:

- Students may submit a maximum of one academic work missed request per term. It is the responsibility of the student to follow up with instructors immediately (within the 3 day period that is specified in the MSAF) regarding the nature of the accommodation. All work due in that time period however can be covered by one MSAF.

- MSAF cannot be used to meet religious obligation or celebration of an important religious holiday, for that has already been completed or attempted or to apply for relief for any final examination or its equivalent.

2) For medical or personal situations lasting more than three calendar days, and/or for missed academic work worth 25% or more of the final grade, and/or for any request for relief in a term where the MSAF has not been used previously in that term:

- Students must visit their Associate Dean's Office (Faculty Office) and provide supporting

documentation.

E-Learning Policy

Consistent with the Bachelor of Technology's policy to utilize e-learning as a complement to traditional classroom instruction, students are expected to obtain appropriate passwords and accounts to access Avenue To Learn for this course. Materials will be posted by class for student download. It is expected that students will avail themselves of these materials prior to class. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail account, and program affiliation may become apparent to all other students in the course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about this disclosure please discuss this with the course instructor. Avenue can be accessed via
http://avenue.mcmaster.ca.

Communications

It is the student's responsibility to:
- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- Check the McMaster/Avenue email and course websites on a regular basis during the term.

Turnitin (Optional)

This course will be using a web-based service (Turnitin.com) to reveal plagiarism. Students submit their assignment/work electronically to Turnitin.com where it is checked against the internet, published works and Turnitin's database for similar or identical work. If Turnitin finds similar or identical work that has not been properly cited, a report is sent to the instructor showing the student's work and the original source. The instructor reviews what Turnitin has found and then determines if he/she thinks there is a problem with the work. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to
http://www.mcmaster.ca/academicintegrity/turnitin/students/

Protection of Privacy Act (FIPPA)

The Freedom of Information and Protection of Privacy Act (FIPPA) applies to universities. Instructors should take care to protect student names, student numbers, grades and all other personal information at all times. For example, the submission and return of assignments and posting of grades must be done in a manner that ensures confidentiality.
http://www.mcmaster.ca/univsec/fippa/fippa.cfm

Academic Accommodation of Students with Disabilities Policy

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca. For further information consult McMaster's policy for Academic Accommodation of Students with Disabilities
http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf

Students must forward a copy of the SAS accommodation to the instructor of each course and to the Program Administrator of the B.Tech. Program immediately upon receipt. If a student with a disability chooses NOT to take advantage of a SAS accommodation and chooses to sit for a regular exam, a petition

for relief may not be filed after the examination is complete. http://sas.mcmaster.ca

Student Code of Conduct

The Student Code of Conduct (SCC) exists to promote the safety and security of all the students in the McMaster community and to encourage respect for others, their property and the laws of the land. McMaster University is a community which values mutual respect for the rights, responsibilities, dignity and well-being of others. The purpose of the Student Code of Conduct is to outline accepted standards of behavior that are harmonious with the goals and the well-being of the University community, and to define the procedures to be followed when students fail to meet the accepted standards of behavior. All students have the responsibility to familiarize themselves with the University regulations and the conduct expected of them while studying at McMaster University.
http://studentconduct.mcmaster.ca/student_code_of_conduct.html