

Course Outline

1. COURSE INFORMATION

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| Session Offered | Fall 2021 | |
| Course Name | Project Management | |
| Course Code | GenTech 3MT3 | |
| Date(s) and Time(s) of lectures | C01: Thu: 2:30 pm – 5:20 pm online C02: Mon: 2:30 pm - 5:20 pm online C03: Online | |
| Program Name | One of the following B. Tech. Programs: Automotive and Vehicle Engineering Technology / Biotechnology / Automation Engineering Technology | |
| Calendar Description | Introduction to best practice in the management of technical projects including the use of planning, software and the management of people. | |
| Instructor(s) | Karim Karim (C01, C02) | E-Mail: karimk7@mcmaster.ca Office: ETB/209 Office Hours: By advance appointment only |
| | Lucas Thung (C03) | E-Mail: thungl@mcmaster.ca Office: ONLINE Office Hours: By advance appointment only |

2. COURSE SPECIFICS

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| Course Description | <p>Projects play an important role in the development and introduction of new products and technology. Consequently, application of project management has become the dominant means by which organizations execute their business and competitive strategy. This course will provide students a comprehensive understanding to the theory and execution of projects and their management. It covers the generally accepted best practices which lead to enhanced project performance.</p> <p>Engineers and technologists will inevitably be involved in projects at various levels, either as a client, team member, project lead or project manager. The course provides a solid grounding in project management concepts, and the use of the various typical project management tools. Successful completion of this course will demonstrate your commitment to project management, improve your ability to manage larger projects and earn additional responsibility, and stand out to potential employers.</p> <p>In particular, upon completion, students will gain sufficient understanding of the fundamental knowledge, terminology and processes of project management to be able to pursue the Certified Associate in Project Management (CAPM) which is a valuable entry-level PMI certification for project practitioners.</p> |
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| Instruction Type | Code | Type | Hours per term | | |
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| | C | Classroom instruction | 39 | | |
| | L | Laboratory, workshop or fieldwork | | | |
| | T | Tutorial | | | |
| | DE | Distance education | | | |
| Total Hours | | | 39 | | |
| Resources | ISBN | Textbook Title & Edition | Author & Publisher | | |
| | ISBN: Print \$129.95 978-1-260-57043-4 | Project Management: The Managerial Process 8 th Edition: | Larson & Gray (McGraw-Hill /Irwin) | | |
| | E-Text \$62.95 978-1-264-55433-1 | | | | |
| | Software (Required) | SimProject: Online Simulation https://simulationpl.com Cost: \$50 USD shared between 3 students (online) | | | |
| | Other Supplies | Source | | | |
| | | <ul style="list-style-type: none"> PowerPoint slides and lab support material will be provided via electronic files on the course A2L site MS Project Software (Free version can be downloaded from the Hub. Instructions posted on A2L) Recommended: Registering for student membership at: PMI.org | | | |
| Prerequisite(s) | GEN TECH 2MP3 and registration in Level 3 of Automotive and Vehicle Engineering Technology, Biotechnology or Automation Engineering Technology | | | | |
| Corequisite(s) | None | | | | |
| Antirequisite(s) | GenTech 3PM3, 4PM3 | | | | |
| Course Specific Policies | <p>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 best run, and some commonly accepted tools and vocabulary for implementing that framework. This means that the more real-world experience that can be used to illustrate the concepts involved the better. Some students may have already been involved with project work during their coop work placement, and can help illustrate course materials with examples of what did and did not work in various situations. Since different companies and industries focus on different aspects of project management, the broader the input, the more likely we are to get useful examples for the entire course. When reading your course materials, please contemplate how they apply to your previous coop work place, and be prepared to share this.</p> <p>Reading Material Before Class: It is expected that students read the material that is coming under discussion prior to class. Students are expected to attend and actively participate during class sessions offering insight, comment, reinforcement, contrary views, and underscoring examples.</p> | | | | |

Switching Classes:

You are required to attend the class days/times for the section in which you are registered. It is possible to attend another class day/time occasionally for specific conflicts that are both urgent and important in nature, such as a coop job interview – **however you must get prior approval from the instructor.**

In-Class Active Learning Component:

Throughout the term there will be a number of in-class group activities. Each activity will address topics and outcomes listed within the course outline and will require work to be performed within the class setting. These may take the form of completing reflection reports, critical thinking questions, mini-cases and application exercises. Marks will also be based on individual class participation for live synchronous responses given during the lectures. The instructor will notify students as to the assessment criteria and format - i.e. individual or group at the time of the activity.

- You must be in the proper section for which you are registered and present during the entire class in which the activity is assigned for it to be graded by the instructor.
- Missed classes which result in missed in-class activities will only be accommodated through the timely application of an approved MSAF.

There will be a number of active-learning activities and the instructor will utilize the top 10 activity marks. Any MSAF's applied will count as the selected dropped activity. There will be no make-up opportunity for the missed group work. Exercises will be graded based on completion, accuracy, and amount of effort shown by the student.

Weekly On-Line Quizzes:

The on-line quizzes will consist of multiple-choice and T/F questions designed to ensure that you are keeping up with your course reading. On-line quizzes will be opened **Monday at 6:00 pm and closed the ensuing Sunday evening at 11:59 pm.**

Ensure that you check the specific quiz dates. The quizzes are accessed through A2L and there will be a time limit for completion once you start the on-line quiz. The time limit will be 30 minutes for the completion of 20 randomly assigned questions. **Highly recommended you study the chapter material in-depth before completing the online quiz.**

- **Note:** There will not be any make-up assignments for missed quizzes whatever the reason.
- **Any collaboration, posting or sharing of online quiz questions or answers with other students will constitute academic dishonesty.**

MS Project Assignment: See A2L

- **Due: Sunday, November 7th @ 11:59 pm**

SimProject Simulation (group of 3 students):

You will be running a simulation where you will act as the project manager for a

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| | <p>company project. Before running the simulation, you will make a plan using resource documents provided in attempt to keep the project within time and cost restrictions. The simulation gives insight to running a project in a workplace, where you must consider planning and executing project, as well as managing conflicts that may arise mid-project.</p> <p>You will run the simulation three times, allowing you to make any changes to make the project the more successful. You will record your results from each simulation round and write a comparison report once all three (3) rounds have been completed.</p> <p>The Project Simulation consists of three (3) submissions</p> <ul style="list-style-type: none"> • Summary Report 1: Record your planning and the success of your first simulation round (Due Sunday November 14th @ 11:59 pm) • Summary Report 2: Record your changes and success of your second simulation round (Due Sunday, November 21st @ 11:59 pm) • Final Report: Comparison of all three rounds and reflection of managing conflict and resources (Due Sunday, November 28th @ 11:59 pm). <p>Note: It is imperative to save your results of each round generated by the SimProject simulation to use for your final report.</p> <p>Late penalties of 20% will be applied automatically for a late submission of any component of project assignment. A further 20% penalty will be applied each day to a late assignment for up to 3 days. After 3-days the assignment will not be graded and you will receive a ZERO.</p> <p>Final Exam:</p> <p>The cumulative final exam will be written during the scheduled examination period. The final exam format may include multiple-choice questions and/or application-focused short answer questions and/or multiple questions related to case incident specific to the constraints presented in the case and/or quantitative calculations.</p> |
| Departmental Policies | <p>Students must maintain a GPA of 3.5/12 to continue in the program.</p> <p>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.</p> <p>Where group work is indicated in the course outline, such collaborative work is mandatory.</p> <p>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.</p> <p>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.</p> <p>Instructor has the right to submit work to software to identify plagiarism.</p> |

| 3. SUB TOPIC(S) | | |
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| Week 1: Sep 9 th & 13 th | <p>Explanation of Course:</p> <ul style="list-style-type: none"> Course outline review and student expectations, requirements and guidelines for Group Project Reviews and Working with MS-Project (MSP) | <p>Course Resources:</p> <p>A2L: Download MS Project Software (free for students) Text: Read CH01</p> |
| Week 2: Sep 16 th & 20 th | <p>Project Management Framework</p> <ul style="list-style-type: none"> Project definition and management structures Integrated approach PMBOK knowledge areas Process groups: Initiating, Planning, Controlling | <p>Course Resources:</p> <p>Text: Read CH02</p> |
| Week 3: Sep 23 rd & 27 th | <p>Scope Management</p> <ul style="list-style-type: none"> Defining the project and Statement of Work Change Control, Scope Creep Work Breakdown Structure, Planning Tools | <p>Course Resources:</p> <p>Text: Read CH03, CH04, A2L: Quiz #1 CH 1&2 (Due Sun, Sep 26)</p> |
| Week 4: Sep 30 th & Oct 4 th | <p>Time and Cost Management</p> <ul style="list-style-type: none"> Estimating Project Times Work Breakdown Structure, Planning Tools | <p>Course Resources:</p> <p>Text: Read CH05 A2L: Quiz #2 CH 3&4 (Due Sun, Oct 3)</p> |
| <i>Fall Recess: Monday, October 11th to Sunday, October 17th (No Classes Scheduled)</i> | | |
| Week 5: Oct 7th & 18 th | <p>Developing a Project Plan</p> <ul style="list-style-type: none"> Developing Project Network Network Computation Process Extended Network Techniques | <p>Course Resources:</p> <p>Text: Read CH06 A2L: Quiz #3 on CH 5 (Due Sun, Oct 10)</p> |
| Week 6: Oct 21 st & 25 th | <p>Scheduling Resources and Managing Duration</p> <ul style="list-style-type: none"> The Resource Scheduling problem Constraints Rationale for Reducing Project Duration Options for Accelerating Project | <p>Course Resources:</p> <p>Text: Read CH08, CH09 A2L: Quiz #4 on CH 6 (Due Sun, Oct 24) MS Project Assignment Planning</p> |
| Week 7: Oct 28 th & Nov 1 st | <p>Managing Project Teams - Human Resources</p> <ul style="list-style-type: none"> Team organization planning Team building PM Interpersonal skills Motivation, Influence, Power Roles and Responsibilities | <p>Course Resources:</p> <p>Text: Read CH10 A2L: Quiz #5 on CH 8&9 (Due Sun Oct 31) SimProject- Planning</p> |
| Week 8: Nov 4 th & 8 th | <p>Risk Management</p> <ul style="list-style-type: none"> Risk types, Identification, Analysis Risk register Impact assessment and response planning Change control management | <p>Course Resources:</p> <p>Text: Read CH07 A2L: Quiz #6 on CH 10 (Due Sun, Nov 7) MS Project Assignment Due: Sun, Nov 7</p> |
| Week 9: Nov 11 th & 15 th | <p>Outsourcing and Procurement</p> <ul style="list-style-type: none"> Managing Inter-organizational Relations Best Practices in Outsourcing Art of Negotiating Contract Management | <p>Course Resources:</p> <p>Text: Read CH12 A2L: Quiz #7 on CH 7 (Due Sun, Nov 14) SIM 1 Summary Due: Sun, Nov 14</p> |

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| Week 10: Nov 18 th & 22 nd | Progress and Performance Management <ul style="list-style-type: none"> • Progress Reporting • Issues Management and Action Log • Earned Value Management • Performance Metrics | Course Resources: Text: Read CH13 A2L: Quiz #8 on CH 12 (Due Sun, Nov 21) SIM 2 Summary Due: Sun, Nov 21 |
| Week 11: Nov 25 th & 29 th | Communication: Execution and Leadership <ul style="list-style-type: none"> • Project governance • Technical and people dimensions • Decision making framework • Conflict management | Course Resources: Text: Read CH11 A2L: Quiz #9 on Ch 13 (Due Sun, Nov 28) SIM Report Due: Sun, Nov 28 |
| Week 12: Dec 2 nd & 6 th | Closing Projects <ul style="list-style-type: none"> • Organization and Administrative • Lessons learned | Course Resources: Text: Read CH14 A2L: Quiz #10 on CH 11 (Due Sun, Dec 5) |
| Catch-up as Required | | |

Midterm Recess: Monday, October 11 to Sunday, October 17

Classes end: Wednesday, December 8

Final examination period: Thursday, December 9 to Wednesday, December 22

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 |
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| Weekly Online Quizzes (10 quizzes, 1% each) | 10% |
| Active Learning (Synchronous group and individual class participation) | 20% |
| MS Project Assignment | 15% |
| SimProject Online Simulation <ul style="list-style-type: none"> • Round 1 Report (2.5%) • Round 2 Report (2.5%) • Final Report (10%) | 15% |
| Comprehensive Final Examination | 40% |
| TOTAL | 100% |

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

5. LEARNING OUTCOMES

1. Apply knowledge of the areas of integration, scope, time, cost, quality, risk, human resources, and communications in the planning and management processes of initiating, planning, controlling, executing, and closing projects.
2. Construct typical project management documents (i.e. Work Breakdown Structure, Network Diagrams, Risk Matrices and others).
3. Analyze project metrics and measurement tools to effectively monitor projects.

4. Distinguishing the importance of acquiring and applying appropriate personal, leadership and organizational skills, which affect the running of projects.
5. Formulate effective negotiation and conflict resolution techniques in support of project planning and management.
6. Use Microsoft Project software to plan and execute projects with Gantt Charts, Network Diagrams, and other features.

6. COURSE OUTLINE – APPROVED ADVISORY STATEMENTS

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 expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or 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. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty: The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, 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 a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

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.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, whether in person or online.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s Academic Accommodation of Students with Disabilities policy.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests. <http://www.mcmaster.ca/policy/Students-AcademicStudies/Studentcode.pdf>

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, including lectures by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.