McGill

Department of

MECHANICAL ENGINEERING

GRADUATE PROGRAMS

2012-2013

Last Revised August 2012

McGill

MECHANICAL ENGINEERING

Graduate Program

Thank you for your interest in pursuing graduate studies in Mechanical Engineering at McGill University. McGill University is one of the world's leading academic institutions, drawing students from every continent. Here you will find a strong and fascinating community of fellow graduate candidates, faculty members who are renowned scholars in addition to being committed to pedagogy and their students, and an interconnected research setting that will flourish with your contributions.

We are pleased to send you information about our research areas, graduate programs and admissions policy and procedure. The application procedure is outlined in the web site given below, where additional information is also provided. Please read these materials carefully before applying. We encourage you to retain this information for further reference if you choose to apply.

Please direct all enquiries, applications and supporting documents to:

Graduate Admissions and Scholarships Coordinator
Department of Mechanical Engineering
McGill University
817 Sherbrooke Street West
Mcdonald Engineering Bldg., Room 270
Montreal, Quebec
Canada, H3A 2K6

Contact: Ms. Emily McHugh
Telephone: (514) 398-8869
Fax: (514) 398-7365
Email: grad.mecheng@mcgill.ca
Website: http://www.mcgill.ca/mecheng/grad
Applications: http://www.mcgill.ca/gradapplicants/

Thank you for your interest in our department, and good luck!

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PROGRAMS AND ELIGIBILITY REQUIREMENTS

MASTER'S DEGREE PROGRAM

M.Eng (*Thesis*) is a research program requiring a minimum of 45 credits consisting of 28 credits of thesis work, a set of one-semester courses with a combined weight of no less than 16 credits, and a one-credit seminar. The M.Eng (Thesis) program is a full-time program.
***Eligibility*:** Students must have successfully completed an undergraduate degree, or the equivalent, in Engineering, with a minimum CGPA equivalent to 3.3 on a scale of 4.0.

M.Sc (Thesis) program is governed by the same regulations as the M.Eng (Thesis) program but is intended for applicants who do not hold an undergraduate Engineering degree.
Eligibility: Applicants to the M.Sc (Thesis program) must hold an undergraduate degree in a non-engineering discipline (typically the Physical Sciences). Applicants with an engineering or applied science degree are not eligible to apply to this program.

The following thesis-related credits must be taken (numbers in brackets represent credit weighting):

MECH 609 (1) M.Eng. Seminar
MECH 691 (3) M.Eng. Thesis Literature Review
MECH 692 (4) M.Eng. Thesis Research Proposal
MECH 693 (3) M.Eng. Thesis Progress Report 1
MECH 694 (6) M.Eng. Thesis Progress Report 2
MECH 695 (12) M.Eng. Thesis

NB: It is recommended that M.Eng. (Thesis) students register for MECH 691 (M.Eng. Thesis Literature Review) and MECH 692 (M.Eng. Thesis Research Proposal) during their first semester.

A thesis describing the candidate's research is to be submitted in accordance with the rules of the Faculty and is the major requirement for the degree. In addition, a set of graduate level courses (500 level or above), are to to be selected by the student and thesis supervisor. These must add up to a minimum of 16 credits, at least 8 of which must be from the Faculty of Engineering.

Each Thesis student **must** meet with his/her thesis supervisor prior to registration to select courses as needed. M.Eng. (Thesis) students are required to complete a minimum of 16 credits of complementary courses during their studies. The MINERVA Course Selection Form must then be completed and signed by the supervisor in the 'Advisor's/Supervisor's Signature' section of the form. All students must bring their signed and completed MINERVA Course Selection Form to the Graduate Program Office to obtain the necessary Departmental signature. Students may then register, online, on MINERVA to complete the registration process. Whether or not you are registering for courses, you must register for the current academic year online and include the registration confirmation REGN RCGR numbers (for both Fall and Winter) in your registration.

Please note that, upon registration for any of the thesis courses (i.e., MECH 691, -692, -693, -694, and -695), the grade "IP", or "In Progress", is automatically assigned. This will change to "P" for "Pass" once your thesis has been submitted and passed evaluation. Please be sure to register ***once and only once*** for each of these courses during your program. The seminar course, MECH 609, should be added to your record at the same time as you add MECH 695. If you do not present your seminar in the same term in which you registered for this course, the grade of "HH", which means "To be Continued", is assigned and then changed to a regular grade once you have made your presentation.

Students in Thesis programs automatically have full-time status. Part-time status is NOT permitted in Thesis programs.

M.Eng (*Non-Thesis*) is a course-based program requiring a minimum of 45 credits consisting of a design project of 12 credits, a set of one-semester courses with a combined weight of at least 32 credits, and a 1 credit seminar. While intended to be a full-time program, the M.Eng (Non-thesis) program may be completed on a part-time basis.
Eligibility: Students must have successfully completed an undergraduate degree, or the equivalent, in Mechanical Engineering, with a minimum CGPA equivalent to 3.3 on a scale of 4.0.

This is a course-based Master's degree which requires 12 graduate courses for completion. All candidates are required to take the following courses (numbers in brackets represent the credit weighting of the course):

MECH 605 (4) Applied Mathematics 1
MECH 610 (4) Fundamentals of Fluid Dynamics
MECH 632 (4) Theory of Elasticity
MECH 642 (4) Advanced Dynamics
MECH 603 (9) M. Eng. Project 1
MECH 604 (3) M. Eng. Project 2
MECH 609 (1) Seminar

NB: The last three courses above are taken near the end of the program. In these courses, industrial liaison is encouraged. The courses MECH 603 and 604 correspond to a single project. Non-thesis students are encouraged to discuss with professors in the Department regarding the availability of projects that are in an area of mutual interest. The remaining courses (minimum 16 credits, 500 level or above, from the Faculty of Engineering) may be selected by the student, based on interest and the choice of the area of concentration. Courses at the graduate level from other faculties may also be taken, with prior approval from the student's project supervisor and the Graduate Program Director. Each Non-Thesis student should select their courses themselves, in accordance with the program information included in this package. You must also include registration confirmation REGN RCGR in your registration. It is recommended that students in this program register for required courses MECH 605, and MECH 632 in their first Fall session. Required courses MECH 642 and MECH 610 should be among your selections for the first Winter term. While no signature is required in the 'Advisor's/Supervisor's Signature' section of the MINERVA form until you have secured yourself a project (and a project supervisor), it is necessary to bring the MINERVA Course Selection Form to the Graduate Program Office to obtain the necessary Departmental signature. Registering online through MINERVA, and including the registration confirmation REGN RCGR numbers (for both Fall and Winter), completes the registration process.

Please note that it is not necessary to wait to register for MECH 603 and MECH 604 until you plan to submit your project report. If you do not submit your report by the end of the term(s) in which you register for these courses, the grade of “HH”, which means “To be continued”, is assigned and then changed to a regular grade once the project report has been submitted.
The seminar course, MECH 609, carries a credit weight of 1 credit. Although it makes most sense to register for it towards the end of your program, this course can be added at any time in your program, particularly if you need one more credit on your record for full-time status. If you do not present your seminar in the same term in which you registered for this course, the grade of “HH” is assigned and then changed to a regular grade once you have made your presentation.
NB: ***At least 12 credits per term to are required to maintain full-time status.***

M.Eng. (*Aerospace*) is a 13-course program, which includes an 'Industrial Stage' (i.e. engineering internship in an aerospace industry) of four months. Enrolment is limited to the number of industrial internships available, so admissions are typically quite competitive. While intended as a full-time program, the M.Eng. (Aerospace) program may be completed on a part-time basis.
***Eligibility*:** Applicants must have successfully completed an undergraduate degree, or the equivalent, in Engineering, with a minimum CGPA equivalent to 3.3 on a scale of 4.0.

The length of study for full-time students is typically 18-24 months for any of the Master's degree options. The time limit to complete a Master's degree is 3 years for full-time students (5 years for part-time students). Please note that the M.Eng. (Thesis) program is only offered on a full-time basis.

For further details please see the Aerospace Engineering Program Handbook: http://www.mcgill.ca/mecheng/sites/mcgill.ca.mecheng/files/aerospacemastersregulations_2011-2012.pdf

Master's in Manufacturing Management is a separate program administered by the Faculty of Management and featuring courses from both Management and Mechanical Engineering. For further details, please visit the MMM website at http://www.mcgill.ca/desautels/mmm/, or contact the MMM program coordinator at mmm.mecheng@mcgill.ca. If you wish to apply for the MMM, please follow the instructions listed for applying online at the website above.

DOCTORAL PROGRAM

Ph.D.: Students must consult their thesis advisor to determine what courses should be taken. During the second semester in the Ph.D. program (i.e. within eight months of starting the Ph.D.), the candidate is required to complete a relevant Literature Review for their thesis project. Within twelve months after the first registration in the program, the candidate is required to submit a Ph.D. thesis proposal. Within sixteen months of starting the Ph.D., the candidate is required to present a proposed research project for review by a faculty committee in the Preliminary Ph.D. Oral Examination. A defence of the Ph.D. thesis concludes the doctoral research. While the duration of this program is contingent on the nature of the research project and the capabilities of the candidate, the minimum time allotted for the completion of the Ph.D. is two years beyond the M.Eng degree. The time limit to complete a Ph.D. program is 4 years beyond the completion of the residency requirement, which is completed at the end of PhD 3.
***Eligibility*:** Students must have successfully completed a Master's degree program, or the equivalent, in Engineering or the Physical Sciences, with high academic standing**.** Students may not apply directly from an undergraduate program. Students enrolled in a masters program in the Department with an outstanding academic record may apply for direct transfer into the Ph.D. program.

POST-DOCTORAL STUDIES

Postdoctoral positions are available on a regular basis in our department. Appointments are made following direct contacts between applicants and faculty members. Information regarding our faculty and their areas of research is available in this document, from Page 21 onwards.

NON-DEGREE STATUS

Special Students are those who are enrolled in graduate-level courses without being enrolled in a degree program. Special students are limited to a **maximum of two courses per term** (6 credits), with a cumulative maximum of twelve credits.

The department can only consider applications for those wishing to enrol in **graduate 600-level Mechanical Engineering courses.** Those who wish to enrol in courses at the undergraduate level (500 level or lower) must direct their applications to the main admissions office of the University (514-398-7878), while those who wish to follow graduate level courses given by departments other than Mechanical Engineering must approach the department(s) responsible for the course(s) in question. Any application received for undergraduate level (500 level or lower) courses, or for graduate courses administered by other departments, **will be returned to the applicant.**

Acceptance as a special student does not guarantee acceptance into our Master's programs, regardless of the mark(s) achieved in the course(s) taken as a special student. Should special students wish to be considered for admission for the M.Eng. program, they must apply separately. Special students admitted into the M.Eng. program may or may not transfer credits earned as a special student towards the completion of the degree.
***Eligibility*:** Applicants must be citizens or permanent residents of Canada. They must have successfully completed an undergraduate degree, or the equivalent, in an appropriate Engineering field with a minimum CGPA equivalent to 3.3 on a scale of 4.0

CREDIT FOR PREVIOUS STUDIES

The granting of credit for previous courses is possible only in certain circumstances. First, we cannot consider giving credit for a course that has already been counted for credit towards another program. If you took a course during another program, which was not required for the program, we can consider giving credit for it ONLY if the official transcript from the previous program clearly indicates that the course was an extra course. Secondly, only graduate level courses with a minimum grade of B- can be counted.

Students who wish to use courses taken previously for credit towards their M.Eng. program in this Department must make a written request to the Department to this effect within their first term in their M.Eng. program. Guidelines for submitting this request can be found at: http://www.mcgill.ca/mecheng/grad/policies/. The Departmental Graduate Administration Committee considers all such requests, and students are informed in writing of their decision.

TAKING COURSES AT OTHER UNIVERSITIES

It is possible for Mechanical Engineering graduate students to register for a limited number of courses at other local universities for credit towards their program. The maximum number of courses outside of McGill for which a student can register is 1/3 of *coursework* credit (which does not include Thesis, Project, or Stage credits). Note that this 1/3 must include the total number of transfer credits (including the ones from previous studies).

Students can apply online to take courses at other universities at: http://www.crepuq.qc.ca/. Students should undertake this IUT (Inter-University Transfer) approval and registration process as early as possible, *but at latest*, *one week before the McGill course add/drop deadline*. You are strongly advised not to register for a course at another university in your last term of studies, as the grade processing may delay your graduation.

APPLICATION POLICY AND PROCEDURE

APPLYING TO A MASTER'S OR DOCTORAL DEGREE PROGRAM

Applicants for graduate studies in Mechanical Engineering at McGill University must provide the following documents to the Graduate Admissions Coordinator of the Department (see address at the front of this document). Please note that all documentation must be received by the application deadline for the term applied. Applications which do not meet all minimum admission requirements are automatically rejected.

REQUIRED DOCUMENTS

- **Completed online application form and fee ($100).**

- **Two referee reports** to be completed by the applicant's referees on the referee report form [.pdf]. Forms must bear the original signatures of the referees and must be forwarded directly to us from the referees in sealed, signed envelopes. Students currently enrolled in the Department of Mechanical Engineering, McGill University are required to obtain only one referee report.

- **Two official transcripts** (or, in certain exceptional cases, two officially-certified copies) of ALL university studies to be sent directly from the academic institution to the Graduate Admissions Coordinator. Transcripts must present evidence of academic achievement, i.e., a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.3 out of 4.0 or a CGPA of 3.5/4.0 for the last two full-time academic years.

  All transcripts, without exception, must be official. However, official transcripts are not required for any studies conducted at McGill University. If applicant (including McGill applicants) has received transfer credits for courses taken at another institution towards any of their degree(s), then official transcripts of those studies, from the institution where the courses were taken, must also be forwarded to the Graduate Admissions Coordinator.

  If degree has been completed, then the applicant MUST provide final transcripts and degree certificates indicating that the degree(s) has/have been conferred and the date on which this took place. In cases where these documents are not written in English or French, the applicant MUST provide the document(s) in the original language accompanied by a certified English translation.

  For students who have completed studies in IRAN: If you have completed your Bachelors and/or Master's program, you MUST provide 2 official versions (each) of your transcript/s AND degree certificate/s that have been stamped and approved by the Iranian Ministry of Foreign Affairs and the Department of Justice (both English and Persian versions are required).
  For students who have completed studies in CHINA: If you have completed your Bachelors and/or Master's program, you MUST provide 2 official versions (each) of your degree certificate/s AND your graduate certificate/s indicating that your degree has been conferred (both English and Chinese versions are required).

- **Official results of either a TOEFL or an IELTS test** are required for applicants whose native language is not English, and who have not completed an undergraduate or graduate degree at a recognized foreign institution where English is the language of instruction, nor at a recognized Canadian institution (anglophone or francophone). The minimum iBT (Internet Based) TOEFL score required is 93 with each component score no less than 20. The TOEFL report must date back no more than 2 years from the application deadline. Candidates who take the IELTS test must obtain a minimum overall band score of 7.0 or better.

  To ensure that TOEFL scores are received by the department, students must complete a form "TOEFL Score Report Request Form" at the time of taking the test and quote 0935 as the University code for McGill *and* 68 as the code for the Department of Mechanical Engineering. GRE scores are not required.

- **A one-page statement of interest**

- **An updated list of publications**

- **A list of extracurricular activities**

- **A current CV**

NOTE: Applicants to the M.Eng. Aerospace should preferably have a working knowledge of French.

APPLYING FOR SPECIAL STUDENT STATUS

(Only available to Canadian citizens and candidates with permanent residency status in Canada):

For applicants for special student status, the following exceptions apply to standard application procedures:

1. When completing the application form, please check the box marked “special student”.

2. Indicate the course(s) that you are interested in taking. A maximum of two courses per term may be taken.

3. Letters of recommendation are not required; however, they are certainly accepted and helpful for the evaluation of the application.

APPLICATION DEADLINES

Completed application forms and supporting documents must reach the Graduate Admissions Coordinator of the department, at the address shown at the front of this brochure, by the following dates:

FALL (September) admission:

January 15: For ALL candidates (Internationals, Permanent Residents, Canadians and Special Students).

WINTER (January) admission:

September 15: For International Candidates

October 15: For Canadians and Permanent Residents

VERY IMPORTANT:

- **ALL** necessary documentation **MUST** be received by the application deadlines noted above.
- Only complete applications will be considered.
- Original documents will not be returned to the applicant.

WHAT TO EXPECT AFTER APPLYING

DEPARTMENTAL ADMISSIONS DECISIONS

The Department aims to mail admissions decisions to most candidates within three months following the application deadline.

APPLICATION FILE INFORMATION

Applicants are informed of any problem with their files in writing (usually through e-mail). Decision letters are mailed to applicants on a rolling basis, as decisions are made. Students who apply using the McGill University's online application system are issued an application number upon completion of the web application, which allows them to regularly check the status of their application, ensure that all documents have been received, and verify all information received.

Certain laws in the Province of Quebec are designed to protect the confidentiality of nominative information. **These laws prohibit us from revealing any application details to a third party, or to divulge information over the telephone or via email.** Should you wish others to make enquiries on your behalf concerning the status of your application, please complete the "Authorization to Release Application Information" section on the web application form.

FINAL ADMISSIONS DECISIONS

Upon being OFFERED admission, a letter is sent to the student indicating that the Department has recommended the student's application to the Graduate and Postdoctoral Studies for admission consideration. The student's file is then sent to the Graduate and Postdoctoral Studies (GPS), along with a recommendation that a formal official offer of admission be sent to the student. The GPS examines the file in light of the department's recommendation and normally sends the official letter on behalf of the University about three weeks later. This delay is due to the large volume of applications that the GPS must process (they process applications of all graduate departments in the University). Please note that the GPSO has the authority to refuse any given departmental recommendation of admission; however, this does not happen often.

Important: The official letter of admission from the GPS may include specific conditions of admission. These conditions **must** be satisfied before you register in the program.

Registration for newly admitted students is held in mid-July (for September admission) and in early December (for January admission). A comprehensive information package featuring details about registration will be sent, via email, to newly-admitted students.

If a student would like to defer, or delay, an offer of admission, a formal written request must be submitted to the department explaining the reasons why a deferral is necessary. The department will then respond in writing. If the request is not granted, or if the student's deferral lapses beyond the one year deferral limit, the student must then complete a new McGill University application form and pay the application fee in order to reapply; in such a case, the

student's new application and documents will be reviewed by the admissions committee - please note that admission to the program is not guaranteed. All supporting documents for applicants to the program are retained for a period of one year.

If a student is REFUSED admission, the student's application is kept on file for a period of one year after the semester to which they originally applied, after which point it is destroyed. If a student wishes to be reconsidered for admission within one year from their original application, a new McGill application form and application fee, as well as updated versions of transcripts (where applicable), must be submitted to the department. If the student wishes to be reconsidered after their application file has been destroyed, all supporting documents (including a new application form and fee), must be resubmitted to the department.

TUITION FEES

Tuition fee information and other cost of living expenses may be found at: http://www.mcgill.ca/student-accounts/fees/grad/

SCHOLARSHIPS AND FELLOWSHIPS

A listing of available internal and external awards may be found at: http://www.mcgill.ca/mecheng/grad/awards

LOANS & BURSARIES

Canadian citizens and permanent residents may be eligible for student loans and bursary programs. McGill University also has limited contingency funds to help cover critical situations or short-term financial need. Information regarding all pertinent loan and bursary programs may be obtained through McGill University's Student Aid homepage at

http://www.mcgill.ca/studentaid/

or by contacting:

Scholarships and Student Aid Office
McGill University
William & Mary Brown Student Services Bldg.
3600 McTavish, Suite 3200
Montreal, QC H3A 1Y2

Tel: 514-398-6013
Fax: 514-398-7352
Email: student.aid@mcgill.ca

USEFUL MCGILL CONTACTS

Information for New Students can be found at:
http://www.mcgill.ca/gps/students/new/

Departmental Policies and Procedures
http://www.mcgill.ca/mecheng/grad/policies/

Student Service Point (Enrolment Services)
http://www.mcgill.ca/students/servicepoint/
3415 McTavish St. (Inside McLennan Library Building)
514-398-7878

Student Records Office
http://www.mcgill.ca/gps/students/registration/
Graduate and Postdoctoral Studies Office
514-398-3990 (or 514-398-7878)

Thesis Office
http://www.mcgill.ca/gps/students/thesis/
Graduate and Postdoctoral Studies Office
514-398-3990 (or 514-398-7878)

Office of Fellowships and Awards
http://www.mcgill.ca/gps/students/fellowships/
Graduate and Postdoctoral Studies Office
514-398-3990 (or 514-398-7878)

Payroll
http://www.mcgill.ca/hr/payroll/
688 Sherbrooke St. West
514-398-4747

Student Accounts Office and Fee Information
http://www.mcgill.ca/student-accounts/
3415 McTavish St. (Inside McLennan Library Building)
514-398-7878

IT Services
http://www.mcgill.ca/it/
688 Sherbrooke St. West, Room 285
514-398-3398

ID Centre
http://www.mcgill.ca/student-records/id/
3415 McTavish St. (Inside McLennan Library Building)
514-398-7878

Transcripts Office
http://www.mcgill.ca/student-records/transcripts/
3415 McTavish St. (Inside McLennan Library Building)
514-398-7878

Convocation Enquiries
http://www.mcgill.ca/student-records/graduation/
3415 McTavish St. (Inside McLennan Library Building)
514-398-7878

Student Health Service
http://www.mcgill.ca/studenthealth/
Brown Student Services Building
3600 McTavish Street, Suite 3300 (Entrance also at 3511 Peel Street)
514-398-6017

Scholarships and Student Aid Office
http://www.mcgill.ca/studentaid/
Brown Student Services Building
3600 McTavish Street, Suite 3200
514-398-6013

International Student Services
http://www.mcgill.ca/internationalstudents/
Brown Student Services Building
3600 McTavish Street, Suite 3215
514-398-4349

Career Planning Service (CaPS)
http://www.mcgill.ca/caps/
Brown Student Services Building
3600 McTavish Street, Suite 2200
514-398-3304

Residences
http://www.mcgill.ca/residences/
Student Housing Office
3473 University Street
514-398-6368

Off-Campus Housing
http://www.mcgill.ca/offcampus/
Student Housing Office
3473 University Street
514-398-6010

Graduate Association of Mechanical Engineering Students (GAMES)
http://www.games.mcgill.ca
Macdonald Engineering Building
817 Sherbrooke Street West, Room 267

Post-Graduate Students' Society (PGSS)
www.pgss.mcgill.ca
David Thomson House
3650 McTavish
514-398-3756

Association of Graduate Students Employed at McGill (AGSEM)
3479 Peel Street, Room 30
514-398-2582

THE FACULTY AND THEIR RESEARCH

AERODYNAMICS AND FLUID MECHANICS

Primary Academic Faculty

L. Cortelezzi, Associate Professor; Ph.D., Caltech, 1992
Fluid flow control; computational fluid mechanics; mathematical modelling and reduced-order models; modeling and optimization of mixing and combustion processes
email: luca.cortelezzi@mcgill.ca

W.G. Habashi, Professor; Ph.D., Cornell, 1975
Computational fluid dynamics, finite element methods, turbomachinery, In-flight icing, multidisciplinary CFD applications
email: wagdi.habashi@mcgill.ca

G. Haller, Professor; Ph.D., Caltech, 1994
Nonlinear dynamics; invariant manifolds; lagrangian coherent structures
email: george.haller@mcgill.ca

T. Lee, Associate Professor; Ph.D., Idaho, l990
Experimental aerodynamics; turbulence and transition control; laser/optic flow measurement; hot-wire anemometry
email: tim.lee@mcgill.ca

D. Mateescu, Professor; Ph.D., Romanian Academy of Science, 1968.
Unsteady, compressible and computational aerodynamics; flow-induced vibrations
email: dan.mateescu@mcgill.ca

L. Mydlarski, Associate Professor; Ph.D., Cornell, 1998
Experimental fluid mechanics and heat transfer; turbulent mixing and dispersion
email: laurent.mydlarksi@mcgill.ca

S. Nadarajah, Associate Professor; Ph.D., Stanford, 2003
Computational Fluid Dynamics (CFD), multidisciplinary optimization (MDO), automatic aerodynamic shape optimization, high-performance parallel computing
email: siva.nadarajah@mcgill.ca

Associated Academic Faculty

B.R. Baliga, Professor; Ph.D., Minnesota, 1978
Computational/experimental fluid dynamics and heat transfer
email: bantwal.baliga@mcgill.ca

J.M. Bergthorson, Assistant Professor; Ph.D., Caltech, 2005
Combustion and reformation of alternative and sustainable fuels
email: jeff.bergthorson@mcgill.ca

D.L. Frost, Associate Professor; Ph.D., Caltech, 1985
Explosions, high-speed combustion processes, and shock wave physics.
email: david.frost@mcgill.ca

A.J. Higgins, Associate Professor; Ph.D., Washington, 1996
Detonation and shock wave dynamics; high-speed reacting flows for propulsion
email: andrew.higgins@mcgill.ca

J.H.S. Lee, Professor; Ph.D., McGill, 1965
Combustion; statistical mechanics.
email: john.lee@mcgill.ca

L. Mongeau, Professor; Ph.D., Penn State, 1991
Computational aeroacoustics, jet noise, airframe noise, flow-induced sound and vibrations
email: luc.mongeau@mcgill.ca

E.V. Timofeev, Associate Professor, Ph.D., St. Petersburg, 1992
Unsteady gasdynamics; hypersonic propulsion; air-breathing engines; starting of hypersonic inlets; computational fluid dynamics of unsteady flows with shock waves; explosion safety
email: evgeny.timofeev@mcgill.ca

BIOENGINEERING

Primary Academic Faculty

F. Barthelat, Assistant Professor; Ph.D., Northwestern University, 2005
Mechanical performance of hard biological materials, Bio-inspired composite materials.
email: francois.barthelat@mcgill.ca

L. Mongeau, Professor; Ph.D., Penn State, 1991
Biomechanics and acoustics of Voice production
email: luc.mongeau@mcgill.ca

R. Mongrain; Associate Professor; Ph.D., Ecole Polytechnique, 1994
Cardiovascular Devices, design, blood flow modelling, biofluids, hemolysis, thrombosis
email: rosaire.mongrain@mcgill.ca

D. Pasini, Associate Professor; Ph.D., Bristol, 2003
Design and Nature, Biomimetics
email: damiano.pasini@mcgill.ca

COMBUSTION AND ENERGY SYSTEMS

Primary Academic Faculty

B.R. Baliga, Professor; Ph.D., Minnesota, 1978
Computational/experimental fluid dynamics and heat transfer
email: bantwal.baliga@mcgill.ca

J.M. Bergthorson, Assistant Professor; Ph.D., Caltech, 2005
Combustion and reformation of alternative and sustainable fuels
email: jeff.bergthorson@mcgill.ca

D.L. Frost, Associate Professor; Ph.D., Caltech, 1985
Explosions, high-speed combustion processes, and shock wave physics.
email: david.frost@mcgill.ca

A.J. Higgins, Associate Professor; Ph.D., Washington, 1996
Detonation and shock wave dynamics; high-speed reacting flows for propulsion
email: andrew.higgins@mcgill.ca

J.H.S. Lee, Professor; Ph.D., McGill, 1965
Combustion; statistical mechanics.
email: john.lee@mcgill.ca

L. Mongeau, Professor; Ph.D., Penn State, 1991
Computational aeroacoustics, jet noise, airframe noise, flow-induced sound and vibrations
email: luc.mongeau@mcgill.ca

E.V. Timofeev, Associate Professor, Ph.D., St. Petersburg, 1992
Unsteady gasdynamics; hypersonic propulsion; air-breathing engines; starting of hypersonic inlets; computational fluid dynamics of unsteady flows with shock waves; explosion safety
email: evgeny.timofeev@mcgill.ca

Associated Academic Faculty

D. Mateescu, Professor; Ph.D., Romanian Academy of Science, 1968.
Unsteady, compressible and computational aerodynamics; flow-induced vibrations
email: dan.mateescu@mcgill.ca

DESIGN AND MANUFACTURING

Primary Academic Faculty

J. Angeles, Professor; Ph.D., Stanford, 1973
Design theory and methodology; design optimization
email: angeles@cim.mcgill.ca

R. Mongrain; Associate Professor; Ph.D., Ecole Polytechnique, 1994
Cardiovascular Devices, design, blood flow modelling, biofluids, hemolysis, thrombosis
email: rosaire.mongrain@mcgill.ca

D. Pasini, Associate Professor; Ph.D., Bristol, 2003
Design and Nature, Biomimetics
email: damiano.pasini@mcgill.ca

P. Radziszewski, Associate Professor; Ph.D., Laval, 1992
Mineral process equipment, Ball/SG/SAG mills, comminution, wear, modelling, simulation, optimization
email: peter.radziszewski@mcgill.ca

V. Thomson, Associate Professor; Ph.D., McMaster, 1976
Product life cycle management; Manufacturing; Control
email: vince.thomson@mcgill.ca

P.J. Zsombor-Murray, Associate Professor; Ph.D., McGill, 1971
Applications of process control; geometric modelling; finite automata
email: paul@cim.mcgill.ca

Associated Academic Faculty

S. Nadarajah, Associate Professor; Ph.D., Stanford, 2003
Computational Fluid Dynamics (CFD), multidisciplinary optimization (MDO), automatic aerodynamic shape optimization, high-performance parallel computing
email: siva.nadarajah@mcgill.ca

S. Vengallatore, Associate Professor; Ph.D., MIT, 1999
Microsystems and nanosystems; Micro/nano machining
email: srikar.vengallatore@mcgill.ca

DYNAMICS AND CONTROL

Primary Academic Faculty

J. Angeles, Professor; Ph.D., Stanford, 1973
Computational methods in connection with mechanical systems; robot dynamics, control and trajectory planning
email: angeles@cim.mcgill.ca

G. Haller, Professor; Ph.D., Caltech, 1994
Nonlinear dynamics; invariant manifolds; lagrangian coherent structures
email: george.haller@mcgill.ca

J. Kövecses, Associate Professor; Ph.D., Hungarian Academy of Sciences, 1994
Dynamics of solid bodies; computational methods; Finite element analysis
email: jozsef.kovecses@mcgill.ca

A.K. Misra, Professor; Ph.D., British Columbia, 1974
Large space structures; tethered satellites; orbital dynamics; space robotics
email: arun.misra@mcgill.ca

M. Nahon, Professor; Ph.D., McGill, 1991
Dynamics and control of aircraft and tethered balloons; cable-based systems; space robotics; flight simulation; parallel mechanisms
email: meyer.nahon@mcgill.ca

C. Pierre, Dean, Faculty of Engineering; Ph.D., Duke University, 1985
Structural dynamics and vibrations; nonlinear dynamics; reduced order modeling; aeroelasticity
email: christophe.pierre@mcgill.ca

I. Sharf, Assoc. Professor; Ph.D., U of Toronto, 1991
Dynamics of multibody systems; parameter identification, motion planning and control for space robotics systems; mechatronics
email: inna.sharf@mcgill.ca

MATERIALS AND STRUCTURES

Primary Academic Faculty

F. Barthelat, Assistant Professor; Ph.D., Northwestern University, 2005
Mechanical performance of hard biological materials, Bio-inspired composite materials
Email: francois.barthelat@mcgill.ca

E. Fried, Professor; Ph.D., Cal. Tech., 1991
Micromechanics of materials; interfacial mechanics
Email: eliot.fried@mcgill.ca

P. Hubert, Associate Professor; Ph.D., University of British Columbia, 1996
Polymer matrix composites, nanocomposites, wood composites, process modeling, finite elements
email: pascal.hubert@mcgill.ca

L. Lessard, Associate Professor; Ph.D., Stanford, 1989
Composite materials
email: larry.lessard@mcgill.ca

D. Pasini, Associate Professor; Ph.D., Bristol, 2003
Efficiency Modelling, optimum selection and design optimisation of structures and flexible systems
email: damiano.pasini@mcgill.ca

S. Vengallatore, Associate Professor; Ph.D., MIT, 1999
Micro/nanoscale mechanics; Nanocomposite materials for microsystems
email: srikar.vengallatore@mcgill.ca

Associated Academic Faculty

L. Mongeau, Professor; Ph.D., Penn State, 1991
Computational aeroacoustics, jet noise, airframe noise, flow-induced sound and vibrations
email: luc.mongeau@mcgill.ca

VIBRATIONS, ACOUSTICS AND FLUID-STRUCTURE INTERACTION

Primary Academic Faculty

M. Amabili, Professor: Ph.D., Bologna, 1996
Vibrations of shell structures; nonlinear vibrations; fluid-structure interaction; dynamics and stability of shells and plates; coriolis flowmeters; vibration monitoring of structures and buildings
email: marco.amabili@mcgill.ca

L. Mongeau, Professor; Ph.D., Penn State, 1991
Computational aeroacoustics, jet noise, airframe noise, flow-induced sound and vibrations
email: luc.mongeau@mcgill.ca

M.P. Paidoussis, Thomas Workman Emeritus Professor; Ph.D., Cambridge, 1963
Flow-induced vibration and stability of structures; non-linear and chaotic dynamics
email: michael.paidoussis@mcgill.ca

C. Pierre, Dean, Faculty of Engineering; Ph.D., Duke University, 1985
Structural dynamics and vibrations; nonlinear dynamics; reduced order modeling; aeroelasticity
email: christophe.pierre@mcgill.ca