UNB SAINT JOHN
SENATE CURRICULUM COMMITTEE
FACULTY CALENDAR SUBMISSION SUMMARY

Faculty:  Science, Applied Science & Engineering   Department: Engineering SJ

Date submitted to Faculty Curriculum Committee: March 31, 2014

Date submitted to Faculty Council: April 23, 2014

Date submitted to Senate Curriculum: Revision date:

Revision date:
SECTION A. New courses

A.1 Item 13-14-115

Proposed course number, title and credit hours:
ENGG 1001 Engineering Practice Lecture Series 0 ch (1C)

Course description:
A guest lecture series intended to introduce students to the engineering profession. Speakers from various engineering disciplines and job functions share their career experiences and discuss engineering projects underway in the region.

Is this course similar to another offered by or likely to affect another Faculty or Department; if so, which one?: Yes. Same as course offered at UNBF with same name and number. Description for UNBSJ eliminates the adjective “exciting” in the interest of objectivity and to reduce the potential for dispute of such a claim.

Does the faculty currently have the human resources/specialty knowledge/workload capacity required to deliver this course?: Subject to availability of guest speakers, yes.

List additional needs (if any) Computer lab / SMART room / specialized software / laboratory:
A budget allocation may be required to cover expenses and honoraria for guest lectures.

Library needs: None.

Name of librarian or staff member of Information Service & Systems (ISS) consulted and date of consultation: N/A

Rationale and other information to support this submission:
The content delivered in ENGG1013 is being reallocated to 3 separate courses, to match the UNBF model. ENGG 1001, 1003 and 1015 are together intended to replace ENGG 1013, in which similar content is delivered in a single team-taught course. Adopting the 3 course model is expected to enhance student transferability between campuses.

Effective date: ASAP.
### A.2

**Item 13-14-116**

<table>
<thead>
<tr>
<th>Proposed course number, title and credit hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGG 1003  Engineering Technical Communication  4 ch (2C 3L) [W]</td>
</tr>
</tbody>
</table>

**Course description:**

Oral, written and visual communication skills are developed as important tools used by engineers. Technical writing style is taught through the preparation of reports and summaries, and oral communication skills are improved through public speaking and the preparation of formal presentations. Computer-aided design is introduced and used to enhance visualization skills. The importance of information literacy is stressed. Various types of engineering drawings are presented and engineering unit conversions are practiced.

**Is this course similar to another offered by or likely to affect another Faculty or Department; if so, which one?:**

Yes. Same as course offered at UNBF.

**Does the faculty currently have the human resources/specialty knowledge/workload capacity required to deliver this course?:**

Yes, subject to deletion of ENGG 1013 and maintaining the resources currently used to support that course.

**List additional needs** (if any) Computer lab / SMART room / specialized software / laboratory:

Same as for ENGG 1013: Irving Hall 102/017 computer labs, Solidworks CAD software.

**Library needs:**

None additional.

**Name of librarian or staff member of Information Service & Systems (ISS) consulted and date of consultation:**

N/A

**Rationale and other information to support this submission:**

The content delivered in ENGG1013 is being reallocated to 3 separate courses, to match the UNBF model. ENGG 1001, 1003 and 1015 are together intended to replace ENGG 1013, in which similar content is delivered in a single team-taught course. Adopting the 3 course model is expected to enhance student transferability between campuses.

**Effective date:** ASAP
A.3
Item 13-14-117

Proposed course number, title and credit hours:
ENGG 1015  Introduction to Engineering Design and Problem Solving  2 ch (1C 2L)

Course description:
This course introduces engineering design methodology and develops basic problem solving techniques. Students work both individually and in teams on real engineering design projects for the local community in a simulated engineering consulting environment. Project planning, team-building, leadership and responsible care are discussed. Laboratories are used to demonstrate problem solving techniques for analytical and open-ended problems, and life-long learning is emphasized by having students integrate co-requisite and researched material into a structured design process. Co-requisites: ENGG 1003, PHYS 1081, MATH 1003, MATH 1503.

Is this course similar to another offered by or likely to affect another Faculty or Department; if so, which one?: Yes. Course of same name and number is offered at UNBF. Description of UNBSJ version of course has been modified from that at UNBF to delete reference to supervision of work by senior engineering students, who are not generally available at UNBSJ for such purposes, and industry engineers, who are not available unless additional resources are provided.

Does the faculty currently have the human resources/specialty knowledge/workload capacity required to deliver this course?:
Course at UNBF incorporates supervision by senior students, which are not available at UNB Saint John, and industry engineers, which may be available subject to budgeting constraints. An arguably equivalent design experience has been provided as part of the ENGG1013 course and the resources freed by deleting that course will (presumably) be available to support the new course.

List additional needs (if any) Computer lab / SMART room / specialized software / laboratory:
Computer labs for modelling and Annex C shops for fabrication and testing of designs will continue to be used. A list of “real engineering design projects for the local community” will also need to be developed and maintained on a continuous basis.

Library needs: None identified.

Name of librarian or staff member of Information Service & Systems (ISS) consulted and date of consultation: N/A

Rationale and other information to support this submission:
The content delivered in ENGG1013 is being reallocated to 3 separate courses, to match the UNBF model. ENGG 1001, 1003 and 1015 are together intended to replace ENGG 1013, in which similar content is delivered in a single team-taught course. Adopting the 3 course model is expected to enhance student transferability between campuses.
The course description at UNBF makes specific reference to “the supervision of senior students and with the guidance of industry engineers” in relation to the first year student design projects in this course. Senior students are not available for such work at UNB Saint John, so additional burden will be placed on faculty members and/or industry engineers to deliver a roughly equivalent experience.

**Effective date:** ASAP
SECTION B. Changes to course number, title, credit hours, description or prerequisite

B.1 Item 13-14-118

<table>
<thead>
<tr>
<th>Number change _____</th>
<th>Title change _____</th>
<th>Description change <strong>X</strong></th>
<th>Prerequisite _____</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit hour change _____</td>
<td>Other (specify): ______</td>
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<td></td>
</tr>
</tbody>
</table>

Course Description

Were consultations made with other faculties that may be affected by the modifications?:
Yes. UNBF Engineering.

Are there any resource implications?:
No.

Rationale for course modification(s):
To match offerings at UNBF and UNBSJ.

Effective date for modification: ASAP
B.2 Item 13-14-119

Current Course Number and Title:  CE 3033   Structural Analysis   5ch (3C 3L)

Proposed Course Number and Title:  CE 2033   Structural Analysis   5ch (3C 3L)

Number change ___X___   Title change _____ Description change ____X____ Prerequisite _____
Credit hour change ______ Other (specify): ______

Course Description:
Influence lines, calculation of deflections, flexibility analysis, stiffness analysis and approximate

Were consultations made with other faculties that may be affected by the modifications?:
Yes.  UNBF Engineering.

Are there any resource implications?:  No

Rationale for course modification(s): To match offerings at UNBF.

Effective date for modification:  ASAP
B.3 Item 13-14-120

Current Course Number and Title:  CE3113 Soil Mechanics I     4 ch (3C 3L*)

Proposed Course Number and Title:  CE2113 Soil Mechanics I     4 ch (3C 3L*)

Number change ___X___    Title change _____ Description change _____ Prerequisite _____

Credit hour change _____  Other (specify): ______

Course Description:  Consolidation, shear strength, stresses under loaded areas, effects of water on soil behaviour. Prerequisites: GEOL 1044, CE 2023. Corequisite: CE 2703.

Were consultations made with other faculties that may be affected by the modifications?:
Yes, UNBF Engineering.

Are there any resource implications?:  No

Rationale for course modification(s):  To match offerings at UNBF.

Effective date for modification:  ASAP
<table>
<thead>
<tr>
<th>Current Course Number and Title:</th>
<th>CE2703  Fluid Mechanics       3ch (3C 1T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Course Number and Title:</td>
<td>CE2703  Introduction to Fluid Mechanics   4ch (3C 1T)</td>
</tr>
<tr>
<td>Number change</td>
<td>Title change</td>
</tr>
<tr>
<td>Credit hour change</td>
<td>Other (specify):</td>
</tr>
</tbody>
</table>

**Course Description:** Physical properties of liquids and gases, fluid statics, kinematics of fluid flow, energy considerations in steady flow, momentum and dynamic forces in fluid flow, fluid measurements, introduction to forces on immersed bodies.

**Prerequisites:** APSC 1013, MATH 1013

**Were consultations made with other faculties that may be affected by the modifications?:** Yes, UNBF Engineering.

**Are there any resource implications?:** No

**Rationale for course modification(s):**
To match offerings at UNBF and UNBSJ.

**Effective date for modification:** ASAP
**Current Course Number and Title:** CHE 2501  General Material Science  3 ch (3C)

**Proposed Course Number and Title:**

Number change _____ Title change ____ Description change ____ Prerequisite __X__

Credit hour change _____ Other (specify): ______

**Course Description:**

The principles relating the properties and behaviour of engineering materials to their structure; atomic bonding forces and strength of interatomic and intermolecular bonding forces, atomic arrangements in solids, structural imperfections and atom movements in solids; principles of phase diagrams and their application to multiphase materials, with particular reference to the iron-carbon system; mechanical and electrical properties of engineering materials; semiconductors, polymers and ceramics; and their relation to internal structure.

Prerequisites: (CHEM 1872/1877 or CHEM 1072/1077 or equivalent), MATH 1013.

**Were consultations made with other faculties that may be affected by the modifications?**
Yes.

**Are there any resource implications?**
No.

**Rationale for course modification(s):**
To match course offered at UNBF and correct calendar omission of prerequisites.

**Effective date for modification:** ASAP.
B.6 Item 13-14-123

Current Course Number and Title: ME1312 Computer Aided Design 4 ch (2C 3L)

Proposed Course Number and Title:

Number change _____ Title change _____ Description change _____ Prerequisite __x__

Credit hour change _____ Other (specify): ______

Course Description: Introduces the technology of 3D parametric geometric modeling to design and model mechanical engineering parts, assemblies and devices. Geometric variables and their interrelationships will be covered by projects involving the design of mechanical components, assemblies and machines to meet functional requirements. Manufacturing requirements including Geometric Dimensioning and Tolerancing. The use of the model for analysis, optimization and simulation will be stressed. Presentation of the model through engineering drawings and pictorial renderings. Animation of mechanisms. A comprehensive commercial CAD program will be used.

Old Prerequisites: ENGG1013, Corequisite: MATH 1503

New Prerequisites: ENGG1003, Corequisite: MATH 1503

Were consultations made with other faculties that may be affected by the modifications?: Yes. UNBF.

Are there any resource implications?: No.

Rationale for course modification(s): Change prerequisite to match new course replacing ENG1013.

Effective date for modification: ASAP
SECTION C. Deletions

C.1 Item 13-14-124

Select 1 action:
- Remove from Calendar but do not delete: ___X____
- Delete from Calendar: ______
- Reinstate in Calendar: ______

Number and title of course: ME 2222 Manufacturing Engineering 4 ch (3C 2L)

If there are any resource implications due to the proposed action, please describe: None

If other programs are affected by this action, which other faculties were consulted and notified?: None affected

Rationale for course removal/deletion/reinstatement: This course has been moved to the third year of the ME program, and is not currently offered in Saint John.

Effective date for action: ASAP

C.2 Item 13-14-125

Select 1 action:
- Remove from Calendar but do not delete: ______
- Delete from Calendar: ___X__
- Reinstate in Calendar: ______

Number and title of course: ME 3482 Thermal Engineering 3 ch (3C)

If there are any resource implications due to the proposed action, please describe: None

If other programs are affected by this action, which other faculties were consulted and notified?: None affected

Rationale for course removal/deletion/reinstatement: This course has not been offered for many years.
Effective date for action: ASAP

C.3 Item 13-14-126

Select 1 action:
Remove from Calendar but do not delete: __X__
Delete from Calendar: ______
Reinstate in Calendar: ______

Current Course Number and Title: ENGG 1013  Design and Communication

If there are any resource implications due to the proposed action, please describe: None

If other programs are affected by this action, which other faculties were consulted and notified?: None affected

Rationale for course removal/deletion/reinstatement: This course has been replaced by the ENGG 1001/ENGG 1003/ENGG 1015 collection of courses.

Effective date for action: ASAP

C.4 Item 13-14-127

Select 1 action:
Remove from Calendar but do not delete: __X____
Delete from Calendar: ______
Reinstate in Calendar: ______

Current Course Number and Title: ME 2613  System Dynamics

If there are any resource implications due to the proposed action, please describe: None

If other programs are affected by this action, which other faculties were consulted and notified?: None affected

Rationale for course removal/deletion/reinstatement: This course has been moved to the third year of the ME program, and is not currently offered in Saint John.
**Effective date for action:** ASAP

**SECTION D. Changes to regulations and programs including new program proposals**

Attach the Information Services & Systems Assessment for new programs or significantly modified programs. Attach the UNB Program Modification form if program changes are significant.

**D.1 Item 13-14-128**

<table>
<thead>
<tr>
<th>Program affected: Bachelor of Science in Engineering, Dept. of Engineering, UNBSJ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>New: ____ Existing: <strong>X</strong></td>
</tr>
<tr>
<td><strong>Description of new program or changes to existing one:</strong></td>
</tr>
<tr>
<td>1. Delete obsolete FAX number</td>
</tr>
<tr>
<td>2. Update department email address</td>
</tr>
<tr>
<td>3. Reflect change in Chair</td>
</tr>
<tr>
<td>4. Edit and amend list of staff</td>
</tr>
<tr>
<td>5. Indicate the range of credit hours obtainable at UNBSJ</td>
</tr>
<tr>
<td>6. Reflect current credit equivalencies between campuses</td>
</tr>
</tbody>
</table>

**Rationale for new program or regulation change(s):** Changes reflect housekeeping including updating credit equivalencies and the range of credit hours obtainable at UNBSJ.

**Effective date for change:** ASAP
ENGINEERING

ENGG 1013001 Engineering Practice Lecture Series Design and Communication 0 ch (1C) 6 ch (3C 3L 3T)
A guest lecture series intended to introduce students to the engineering profession. Speakers from various engineering disciplines and job functions share their career experiences and discuss engineering projects underway in the region. A project-based course integrating the theory and practices learned in co-requisite courses. Design and communication aspects will be emphasized, including engineering activities, life-long learning, design process and methodology, technical writing, presentations, graphics, information sources, teamwork and assessment strategies. Corequisite: APSC 1013, MATH 1003 and MATH 1503.

ENGG 1003 Engineering Technical Communication 4 ch (2C 3L) [W]
Oral, written and visual communication skills are developed as important tools used by engineers. Technical writing style is taught through the preparation of reports and summaries, and oral communication skills are improved through public speaking and the preparation of formal presentations. Computer-aided design is introduced and used to enhance visualization skills. The importance of information literacy is stressed. Various types of engineering drawings are presented and engineering unit conversions are practiced.

ENGG 1015 Introduction to Engineering Design and Problem Solving 2 ch (1C 2L)
This course introduces engineering design methodology and develops basic problem solving techniques. Students work both individually and in teams on real engineering design projects for the local community in a simulated engineering consulting environment. Project planning, team-building, leadership and responsible care are discussed. Laboratories are used to demonstrate problem solving techniques for analytical and open-ended problems, and life-long learning is emphasized by having students integrate co-requisite and researched material into a structured design process. Co-requisites: ENGG 1003, PHYS 1081, MATH 1003, MATH 1503.
CIVIL ENGINEERING

A grade of C or higher is required in all Civil Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

CE 2023 Mechanics of Materials 5 ch (3C 3L)
Elastic and plastic stress, strain; behavior of beams and columns, torsion; material strength.

CE 2033 Structural Analysis 5 ch (3C 3L)

CE 2113 Soil Mechanics I 4 ch (3C 3L*)
Consolidation, shear strength, stresses under loaded areas, effects of water on soil behaviour. Prerequisites: GEOL 1044, CE 2023. Corequisite: CE 2703.

CE 2603 Construction Engineering I 3 ch (2C 1T)
Responsibilities and relationships of participants in the construction industry. Standard contract documents, contractor resources and project control. Prerequisite: restricted to students with at least 60 ch successfully completed.

CE 2703 Introduction to Fluid Mechanics 3.4 ch (3C, 1T)
Physical properties of liquids and gases, fluid statics, kinematics of fluid flow, energy considerations in steady flow, momentum and dynamic forces in fluid flow, fluid measurements, introduction to forces on immersed bodies. Prerequisite: APSC 1013, MATH 1013.

CE 2022 Structural Analysis 5 ch (3C 3L)
Influence lines for beams and trusses; analysis of indeterminate structures including approximate, classical, moment distribution, and numerical methods. Prerequisite: CE 2023.

CE 3113 Soil Mechanics I 4 ch (3C 3L*)
Consolidation, shear strength, stresses under loaded areas, effects of water on soil behaviour. Prerequisites: GEOL 1044, CE 2023. Corequisite: CE 2703.
CHEMICAL ENGINEERING

A grade of C or higher is required in all Chemical Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

CHE 2014 Accelerated Introduction to Chemical Engineering 4 ch (3C 1T)
Introduces the discipline of chemical engineering and develops fundamental skills of unit conversion and material balancing. Systems of units for parameters such as concentration, flow, pressure and temperature are explained. Skills for solving steady-state material balance problems on reactive and non-reactive systems. Fundamentals such as vapor-liquid equilibrium, partial saturation and real gas relationships are introduced and integrated into material balance problems. The concepts of enthalpy and energy balances on open systems. Unsteady-state and simultaneous mass and energy balance systems are modeled and solved using computer packages. When combined with 2 ch of approved technical electives, this course is considered equivalent to CHE 1004 + CHE 2004 . Prerequisite: Math 1503 or Math 2213, or equivalent.

CHE 2412 Chemical Engineering Laboratory I 3 ch (1C 3L)
Covers bomb and flow calorimetry, material and energy balance study of the University heating plant, fluid mechanics experiments including flowmeter calibrations and pressure drop measurements in pipes and fittings will be conducted. Interpretation of experimental data, group dynamics, safety issues, report writing and oral presentations. Student will work under close supervision Co-requisite: CE 2703, ME 3413.

CHE 2501 General Materials Science 3 ch (3C)
The principles relating the properties and behaviour of engineering materials to their structure; atomic bonding forces and strength of interatomic and intermolecular bonding forces, atomic arrangements in solids, structural imperfections and atom movements in solids; principles of phase diagrams and their application to multiphase materials, with particular reference to the iron-carbon system; mechanical and electrical properties of engineering materials; semiconductors, polymers and ceramics; and their relation to internal structure. Prerequisites: (CHEM 188272/1877 or CHEM 40411072/10727 or equivalent), MATH 1013.

CHE 2506 Materials Science Laboratory 1 ch (3L*)
Laboratory experiments are conducted to illustrate behaviour of materials and other concepts covered in CHE 2501.
MECHANICAL ENGINEERING

A grade of C or higher is required in all Mechanical Engineering courses.

**Note:** See beginning of Section F for abbreviations, course numbers and coding.

**ME 1312  Computer Aided Design  4 ch (2C 3L)**
Introduces the technology of 3D parametric geometric modeling to design and model mechanical engineering parts, assemblies and devices. Geometric variables and their interrelationships will be covered by projects involving the design of mechanical components, assemblies and machines to meet functional requirements. Manufacturing requirements including Geometric Dimensioning and Tolerancing. The use of the model for analysis, optimization and simulation will be stressed. Presentation of the model through engineering drawings and pictorial renderings. Animation of mechanisms. A comprehensive commercial CAD program will be used. Prerequisite: ENGG 10043 Corequisite: MATH 1503.

**ME 2111  Mechanics of Materials I  3 ch (3C 1T)**
Basic concepts, uniaxial stress and strain, Hooke's law, torsion, pure bending, bending design, shear flow, transverse loads, stress and strain transformation, Mohr's circle, strain measurement. Prerequisite: APSC 1023.

**ME 2122  Mechanics of Materials II  3 ch (3C 1T)**
Fatigue, yield criteria, thin-wall pressure vessels, strength and deflection of beams, buckling of columns, instability, indeterminate beams, energy methods, Castigliano's theorem. Prerequisite: ME 2111 or ME 2121 or CE 2023.

**ME 2125  Mechanics of Materials Design Project  1 ch (2L)**
Analysis of the strength of a mechanical device. Shapes and materials will be modified to meet deflection and stress limits. Written reports will document choices made and assessment of design. Group oral reports. Prerequisite: ME 2111 or ME 2121 or CE 2023. Corequisite: ME 2122.

**ME 2143  Kinematics and Dynamics of Machines  3 ch (3C 1T)**
Fundamental concepts of linkages, displacement, velocity and acceleration analysis using graphical and analytical methods. Static and dynamic force analysis of linkages. Introduction to cams. Gears: involute nomenclature; bevel, helical and worm gears; ordinary and planetary gear trains. Balancing rotating masses. Simple gyroscopic effects. Prerequisite: APSC 1023. Recommended: CS 1003 or other introductory programming course.

**ME 2145  Kinematics and Dynamics Design Project  1 ch (2L)**
Student groups to design and build working model of planar linkage mechanism, based on a mechanical application. Cooperation and project management skills. Written reports to document choices made; evaluation of working model performance; and position, velocity, acceleration and force analyses. Group oral reports. Prerequisite: APSC 1023. Corequisite: ME 2143.

**ME 2222  Manufacturing Engineering  4 ch (3C 2L)**
Introduction to manufacturing processes; design criteria for material and process selections. Fundamentals of mechanical behaviour of materials, particularly the yield behaviour under...
triaxial stresses. Crystal structures; failure modes and the effect of various factors; manufacturing properties of metals. Surface structure and properties; surface texture and roughness; friction, wear, and basic lubrication; surface treatment design. Metal casting processes and equipment; casting design; heat treatment. The laboratory exercises are: heat treatment design, precipitation strengthening, Jominy, centrifugal casting, and impact toughness test. Prerequisite: CHE 2501 and CHE 2506.

**ME-2613 System Dynamics** 4 ch (3C-3L)

System concept, dynamics system elements; mechanical, electrical, fluid and thermal. Systems of elements and their differential equations; analysis of systems of first and second order by various methods; industrial applications; modeling of physical systems on the analog computer. Prerequisites: MATH 1013, APSC 1023. Recommended: EE 1013. Corequisite: MATH 2503.

**ME 3232 Engineering Economics** 3 ch (3C)

Application of engineering economic analysis to mechanical and industrial engineering systems. Major emphasis will be given to decision-making based on the comparison of worth of alternative courses of action with respect to their costs. Topics include: discounted cash flow mechanics, economic analyses, management of money, economic decisions. Restricted to students with at least 60 ch in their program.

**ME 3352 Design Optimization** 4 ch (3C 3L)

Optimization of any design is essential either to remain competitive or to improve product efficiency and quality. Several optimization methods are presented through a variety of mechanical design and industrial engineering problems. Topics include: single and multi-variable unconstrained optimization, linear programming, transportation, assignment and network problems. Other topics such as constrained and global optimization are introduced. Prerequisites: CS 1003, MATH 1003, MATH 1503.

**ME 3413 Thermodynamics I** 3 ch (3C)


**ME 3415 Thermodynamics I Laboratory** 1 ch (3L*) [W]

Laboratory experiments and measurements related to Thermodynamics I. Laboratory reports and readings are assigned. Co-requisite: ME3413

**ME-3482 Thermal Engineering** 3 ch (3G)

Elementary engineering thermodynamics, steam and gas power cycles, heat transfer, psychrometry, air conditioning and refrigeration. Prerequisites: MATH 1013, ME 1113.

**ME 3513 Fluid Mechanics** 3 ch (3C)

The principles of fluid mechanics are introduced and methods are presented for the analysis of fluid motion in practical engineering problems. Specific topics include: fluid statics; integral balances of mass, momentum, angular momentum and energy; boundary layer theory and introduction to the Navier-Stokes equations; dimensional analysis; and liquid flow in piping networks with pumps and turbines. Pressure and flow measurement and experimental uncertainty. Prerequisites: APSC 1023. Co-requisite: MATH 2513.

**ME 3515 Fluid Mechanics I Laboratory** 1 ch (3L*) [W]
Laboratory experiments and measurements related to Fluid Mechanics I. Laboratory reports and readings are assigned. Co-requisite: ME3513
BACHELOR OF SCIENCE IN ENGINEERING

Department of Engineering

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Mailing Address: Department of Engineering, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone: (506) 648-5595
Fax: (506) 648-5513
Email: eng@unb.ca
Website: http://www.unb.ca/saintjohn/sase/undergrad/engineering/index.html

FACULTY

Chair: Dale Roach, Peregrine Riley, PhD, PEng

- Christie, James S., BScE, MScE, PhD (UNB), PEng, Prof - 1989
- Cotter, G. Terrance, BScE, MScE (UNB), PhD (Purdue), PEng, Hon Research Prof - 1972
- Gadoura, Idris, BScE BScE (Libya), MScEMScE, PhD (HUT, Finland), Senior Teaching Instructor-Associate – 2006
- Yves Gagnon, BEng (Sherbrooke), MScME (MIT), DSc (Toulouse), PEng – Adjunct Prof
- Mojumdar, Subhash C., PhD - Adjunct Prof
- Prasad, Ramesh C., BScE (BhU), MTech (IIT), MScE, PhD (UNB), PEng, Emeritus Prof - 1982
- Riley, Peregrine, BScE (Qu), PhD (UNB), PEng, Senior Teaching Associate and Chair- 1986
- Roach, Dale, BSCEng, PhD (UNB), PEng, DUT, Senior Teaching Associate and Chair - 2000
- Sollows, Kenneth F., BScE, MScE, PhD (UNB), PEng, Associate Prof - 1985
- Sun, Ligun, BScE (NWPU, China), MScE (NWPU, China), PhD (TsU, China), Hon Res Assoc
- Varner, Joshua, BSc, MSc (UNB), Instructor - 2010
- Walton, Byron A., Eng Cert (Mt.All.), BScE (NSTC), MScE (UNB), PEng, Senior Teaching Associate 1975
- Wang, Yunli, BScE (Harbin, China), MScE (TsU, China), Adjunct Prof

The Engineering programs are based on Department course credit requirements established by the Faculty of Engineering as detailed in Section G of this Calendar. The courses available will satisfy up to one-half of the total course requirements for Chemical, Civil, Computer, Electrical, Mechanical, and Software Engineering. Geological, Forest and Geomatics Engineering students may obtain approximately one-quarter of their total course requirements.

Elective courses should be chosen to satisfy specific Department program requirements. See Section G of this Calendar.

The total number of terms required to complete an Engineering program depends on the course load taken by the student. Students who follow approved programs, and who obtain about 80-85 credit hours of approved courses at UNB Saint John, will have the opportunity to complete the Bachelor's degree requirements in Chemical, Civil, Computer, Electrical and Mechanical Engineering at UNB Fredericton in two additional fall and two additional winter terms. Students in Geomatics, Geological and Forest Engineering will require six or more terms at UNB Fredericton in addition to the program credits they obtain at UNBSJ.
For information on the Co-op Program, Professional Experience Program (PEP) and the Diploma in Technology Management and Entrepreneurship (TME), refer to Section G of this Calendar.

Engineering practice and environmental concerns cannot be separated; they are fundamental to all engineering disciplines. Engineering students with a particular interest in environmental issues are encouraged to choose the discipline most closely related to their interest. The following list indicates disciplines associated with various areas of environmental concern

**Chemical Engineering:** air and water quality
pollution control

**Civil Engineering:** hydrology
groundwater
solid waste management
water and wastewater treatment
environmental geotechnics

**Computer Engineering:** digital hardware
automotive and vehicle control
process industries and power systems
instrumentation and communication

**Electrical Engineering:** instrumentation and control
energy conversion and utilization
electromagnetic interference and compatibility

**Forest Engineering:** forest dynamics
silviculture
integrated renewable resource management
machine/environment interactions
hydrology

**Geodesy & Geomatics Engineering:** remote sensing of the environment
mapping of land and water resources
monitoring of topographic change
hazard mapping
environmental information systems

**Geological Engineering:** conservation and management of resources
waste disposal
environmental geotechnics

**Mechanical Engineering:** alternative energy systems
recycling systems and design for recycling
energy conservation and utilization

**Software Engineering**
computer software
information system
system testing and maintenance

Please refer to the UNBF portion of the calendar for information on the General 1st Year Program (Engineering I), Biomedical Engineering and Mechatronics Engineering.

At UNB Saint John the following courses are equivalent to the same courses at UNB Fredericton and/or to the other UNB Fredericton courses listed opposite:
GEOL 1044 = ESCI 1001 + ESCI 1026 - GEOL 1001 + GEOL 1026;
GEOL 1044 + GEOL 1074 = ESCI 1001 + ESCI 1026 + ESCI 2022 - GEOL 1001 + GEOL 1026 + GEOL 2022;
ME 3232 = CE 3963;
ME 3413 = CHEM 2601 = CHE 2012 + CHE 2123;
ME 3513 = ME 3511;
CE 2703 = CHE 2703;
SE 1001 = GGE 1001;


Note: Minimum grade of C is required for all prerequisite and all core and technical elective courses used for credit towards the BSc(Eng) degree.

Standard Engineering Programs

Courses are arranged by priority for each major program. Most programs are designed to be completed in eight terms of study. Students electing to spread their studies over nine or ten terms can defer low-priority courses to later terms and thus balance their workload. Students should consult their faculty advisors before selecting courses.

To view suggested course plans for each major, please see: http://www.unbsj.ca/engineer/planner/index.html