ENG M 401 Financial Management for Engineers

Spring 2024 - May 06 to August 2

Class time: Tuesday, Thursday 17:00-18:20 Location: Remote (Zoom)

Instructor:

Bryan Rapati, MBA, P.Eng, he, him
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Donadeo ICE 9-222
Office Hours: Thursday 6:30 - 7:30pm, or by appointment

Course Description:

*3 (fi) (either term, 3-0-0) The application of the fundamentals of engineering economics, financial analysis and market assessment to engineering alternatives in the planning, development and ongoing management of industrial enterprises. The course covers the use of engineering, economic, financial and market assessment information in investment and business operation decisions in technology oriented companies. Note: Credit cannot be obtained for more than one of ENGG 310, ENGG 401, ENG M 310, or ENG M 401

Prerequisites: None

Course synchronous and asynchronous content delivery schedule:

This course will be delivered synchronously throughout the Spring and Summer terms during the scheduled lecture times via Zoom, assessable through eClass.

Lecture recordings will be available for one week after the lecture date. Attending the lectures is highly encouraged as there will be synchronous activities occurring during the live lecture times

Some supplementary information will be provided asynchronously throughout the term.

Land Acknowledgment:

The University of Alberta respectfully acknowledges that we are located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

TA Information:

Abril Alvaro Munoz - engm401@ualberta.ca
Priscila Mendoza - engm401@ualberta.ca

Course Objectives & General Content:

This course covers the application of the fundamentals of engineering economics, financial analysis, and market assessment to engineering alternatives in the planning, development, and ongoing management of industrial enterprises.

The course covers the use of engineering, economic, financial, and market assessment information in investment and business operation decisions in technology-oriented companies.

Learning Outcomes:

By the end of this course, students should be able to:

1. Be familiar with financial terminology
2. Interpret income statements, balance sheets and statements of cash flow
3. Draw and read cash flow diagrams
4. Calculate the net present value of an investment or project
5. Describe the concepts of time value of money and equivalence
6. Calculate values of cash flow at various points in time
7. Evaluate and compare alternative investments of projects

Marking Scheme:

Activity	(A)Synchronous	Due/Scheduled	Weight
Assignments (Top 5 of 6)	Asynchronous	see eClass for Due Dates	20%
Quizzes (2)	Synchronous	June 13 & July 25, 2024	10%
Midterm	Synchronous	June 20, 2024	30%
Final Exam	Synchronous	Aug 1, 2024	40%

The Faculty recommended grade point average for a 400 level course is 3.1. Instructors have the leeway to deviate from this average and can assign grades based on their own scheme. All grades are approved by the department chair (or delegate). The office of the Dean has final oversight on all grades.

Term Work

All term work solutions will be posted no later than the last day of classes. All term work will be returned to students by the final day of classes, with the exception of major term work due in the last week of classes. The latter will be returned by the day of the final examination or the last day of the examination period if there is no final examination in the course as per university policy; instructors will make accommodations to return these term work. It is the responsibility of the student to pick up all their term work at the specified time and place. Any unreturned term work, shall be retained and then shredded six months after the deadline for reappraisal and grade appeals. Final examinations will be kept for one year as required by

university guidelines and the Government of Alberta's Freedom of Information and Protection of Privacy Act.

Calculator Policy

There is no calculator policy in this course; students are free to use the calculator they wish for all assessments.

Expectations for AI use

In this course, our primary focus is to cultivate an equitable, inclusive, and accessible learning community that emphasizes individual critical thinking and problem-solving skills. To ensure a fair and consistent learning experience for all students, the use of advanced AI tools such as ChatGPT or Dall-E 2 is strictly prohibited for all academic (written/coding/creative/etc.) work, assignments, and assessments in this course. Each student is expected to complete all tasks without substantive assistance from others, including AI tools.

Any use of AI tool in your academic work may result in academic penalties and be considered an act of cheating and a violation as outlined in the relevant sections of University of Alberta (November 2022) Code of Student Behaviour .

Text and References (Recommended):

P. Flynn, Financial Management for Engineers, 4th Edition, Castle Rock Research Corp., Edmonton, AB, 2010 (reprinting of 2009 version of the 4th edition, with errata corrected).

Website:

eClass

Did you know that the University of Alberta has various low-to-no-cost services to help students succeed? Visit http://www.deanofstudents.ualberta.ca/ for information about the academic, wellness, and various other support services available to U of A students. It's never too early or too late to seek help!

Week	Day	Lecture	Content	Assigned	Due
1	May 7, 2024	1	Course Introduction		
	May 9, 2024	2	Engineering, Business, and Society		
2	May 14, 2024	3	Introduction To Financial Statements		
	May 16, 2024	4	Income Statements (1)		
3	May 21, 2024	5	Income Statements (2) / Depreciation (1)	Assignment # 1	
	May 23, 2024	6	Depreciation (2)		
4	May 28, 2024	7	After-Tax Cash Flow / Other Income / Retained Earnings	Assignment # 2	Assignment # 1
	May 30, 2024	8	Balance Sheets (1)		
5	June 4, 2024	9	Balance Sheets (2)	Assignment # 3	Assignment # 2
	June 6, 2024	10	Statement of Cash Flows (1)		
6	June 11, 2024	11	Statement of Cash Flows (2)		Assignment # 3
	June 13, 2024	12	Ratio Analysis and Leverage (1)	Quiz # 1	
7	June 18, 2024	13	Ratio Analysis and Leverage (2)		
	June 20, 2024	14	**Midterm Exam @ 5pm**		
8	June 25, 2024	15	Time Value of Money (1)		
	June 27, 2024	16	Time Value of Money (2)	Assignment # 4	
9	July 2, 2024	17	Interest Calculations (1)		
	July 4, 2024	18	Interest Calculations (2)	Assignment # 5	Assignment # 4
10	July 9, 2024	19	Equipment Cost		
	July 11, 2024	20	Present Worth Analysis (1)	Assignment # 6	Assignment # 5
11	July 16, 2024	21	Present Worth Analysis (2)		
	July 18, 2024	22	Rates of Return		Assignment # 6
12	July 23, 2024	23	Market Value Assessment (1)		
	July 25, 2024	24	Market Value Assessment (2)	Quiz # 2	
13	July 30, 2024	25	Review and Course Wrap Up		
	Aug 1, 2024	26	**Final Exam @ 5pm**		

University and faculty policies

Respect and professionalism

The Faculty of Engineering is committed to fostering and protecting an equitable, inclusive, and respectful work and study environment in line with University of Alberta policies and professional engineering industry standards.

The faculty prepares students to uphold industry standards to become a Professional Engineer (P.Eng). Therefore, respect, professionalism, and accountability must be upheld within the Faculty of Engineering and the University of Alberta.

Academic integrity

All students are expected to follow the University of Alberta's Student Code of Behaviour and Student Conduct Policy. The faculty expects an environment free of harassment, discrimination, and bullying. We encourage you to talk to the Office of Safe Disclosure and Human Rights about experiences, questions, or concerns. Additional resources and support for students are attached below.

Engineering students studying in the province of Alberta must also follow the Code of Ethics set by the Association of Professional Engineers and Geoscientists of Alberta (APEGA).

Course outline policies, course requirements, evaluation and grading information can be found in the University Calendar.

Safety during learning activities

In all Faculty of Engineering courses, labs, seminars or other learning activities, safety is of paramount importance. In some cases, laboratory work in a program requires high standards for risk management to keep potential hazards safely under control.

Anyone found to be unable to function safely in the class, lab, seminar or other learning activity may be asked to leave or be removed for their and the safety of other participants and instructors in alignment with the Student Code of Behaviour and Student Conduct Policy. As members, or prospective members, of the engineering profession, it is your responsibility to identify and inform the proper authorities of unsafe work.

Audio and video recording

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan.

Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Only those items specifically authorized by the instructor may be brought into the exam facility. Students must not bring any unauthorized electronic device into an examination room, including cell phones or other devices.

Student services and support

Health & Wellness Support

Counselling and Clinical Services

Free, short-term, appointment-based counselling and psychiatric services. Also offers drop-in workshops. Book an initial consultation. Visit uab.ca/CCS to learn more.

Wellness Supports Social Workers

Free one-on-one support for students in the areas of housing, finances, academics, personal wellness, life skill development, family dynamics, system navigation, and any area of life where there is a desire to invite change. Visit uab.ca/wellness to learn more.

Sexual Assault Centre

Free, anonymous, and confidential drop-in counselling. Visit uab.ca/UASAC to learn more.

The Office of Safe Disclosure & Human Rights (OSDHR)

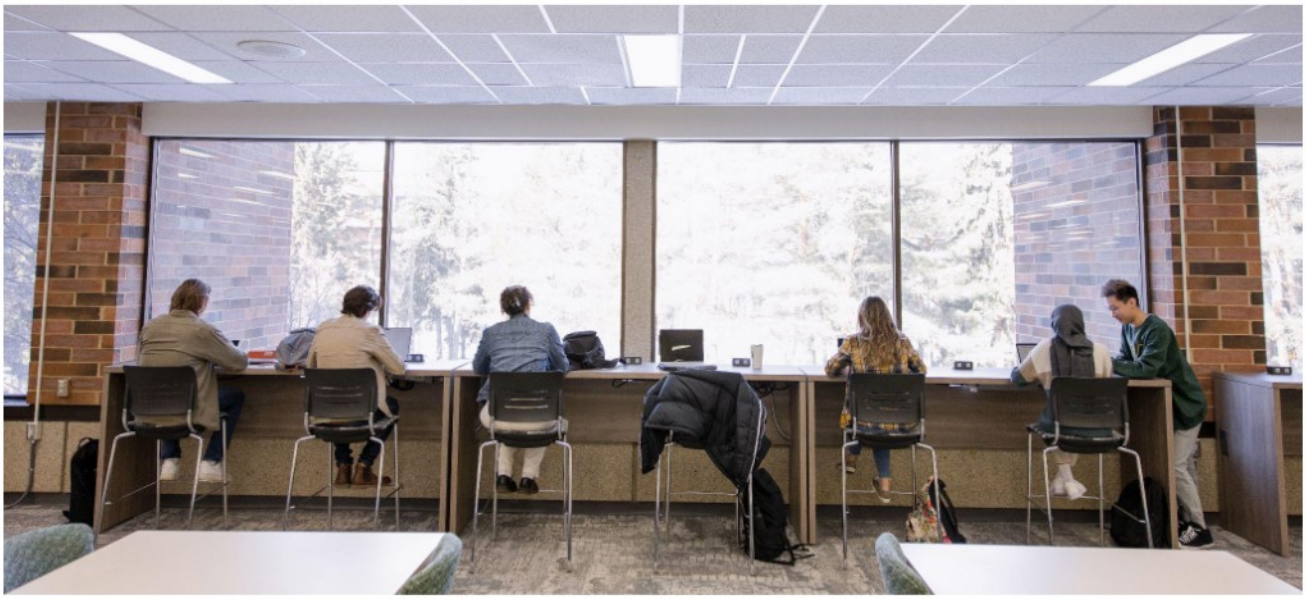
The OSDHR advises confidentially on sensitive issues you may not feel comfortable solving on your own. Contact the OSDHR if you want to get help or to make a report while keeping your privacy. Visit uab.ca/OSDHR to learn more.

HIAR (Helping Individuals at Risk)

If you're worried about someone, contact HIAR, who can help assess risk and connect individuals to support. Learn more at uab.ca/HIAR.

Immediate External Supports

Health Link Alberta: 811
Suicide Crisis Helpline: 988



Academic support

Academic Success Centre
Access to a variety of services to maximize your academic success. Learn more at uab.ca/ASC.

Accessibility Resources
Connects students with disabilities to accommodations. Learn more at uab.ca/Access under accommodations + accessibility.

Decima Robinson Support Centre
Academic support for 100- or 200-level introductory calculus, linear algebra and statistics courses. Visit uab.ca/DSC to learn more.

Engineering Student Success Centre
The Faculty of Engineering provides drop-in tutoring for first-year courses. Visit uab.ca/ESSC to learn more.

Office of the Student Ombuds
Call for complex problems and conflict mediation. Learn more at uab.ca/ombuds.

UNIVERSITY OF ALBERTA

Financial support

Student Service Centre

For awards and other funding support. Learn more at uab.ca/ask.

Campus Food Bank

The Campus Food Bank Society is an independent charity supporting University of Alberta students, faculty, staff, and alumni for up to five years. For additional information visit their website at campusfoodbank.com.