Course Mechanics

Module & Lesson Structure

Project Valuation and The Capital Budgeting Process

Module 1:	Course Overview Time Value of Money
Module 2:	Project Valuation Techniques: *NPV, IRR & PBP*
Module 3:	Project Selection and Capital Budgeting
Module 4:	Depreciation, Taxes and Inflation
Module 5:	Building the Business Case

Lesson 1:	Course Overview & Mechanics
Lesson 2:	Time Value of Money
Lesson 3:	Compounding Interest Periods
Lesson 4:	Some Practical Examples

In general, there will be several short videos for each lesson, as well as lecture notes available as a downloadable pdf.

A little more about your instructor…Dr. Michael Readey

Career:

- **Professor of Engineering Practice**
  Engineering Management Program
  University of Colorado Boulder (since 2016)
- President, MV Technologies LLC, Golden, CO.
- President, AeriNOx Inc., Boulder, CO
- Product Director, Emission Control Systems,
  Caterpillar Inc., Peoria, IL
- Research Scientist, Materials Research Group
  Sandia National Laboratories, Albuquerque, NM
- Assistant Professor, Materials Science & Engineering
  Carnegie Mellon University, Pittsburgh, PA
- Director of R&D, CoorsTek, Golden, CO

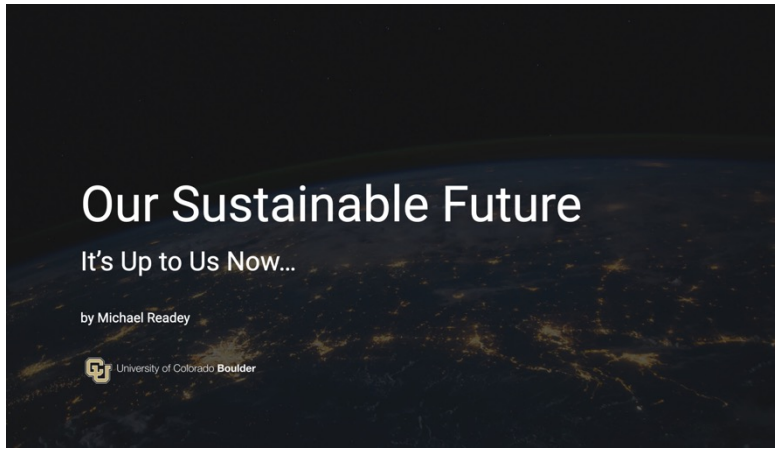
Education:

BS & MS: Ceramic Engineering
Ohio State University

Ph.D.: Materials Science & Engineering
Case Western Reserve University

A little more about your instructor…Dr. Michael Readey

What I like to do when I'm not in the classroom…



Coursera Online Course:
"Our Sustainable Future"

Making it to the top of
Independence Pass in Colorado.

Enjoying my veggie garden.

A little more about your instructor…Dr. Michael Readey

Yes, I am a progressive environmentalist passionate about sustainability…

I believe we have many significant environmental and social challenges that we need to overcome.

Business is a great way to solve them.

Also, you'll be faced with many decisions in your career that are not all related to maximizing corporate profits.

So we talk about these things!

Finance for Technical Managers…

Introductions

- ✓ *What's your name?*
- ✓ *What is (or was) your major?*
- ✓ *What are you doing today?*
- ✓ *What's a recent accomplishment you're proud of?*
- ✓ *What do you want to get out of this course?*

Your first assignment! Introduce yourself to your peers on the Discussion Forum – and then meet one of them!

The Course Syllabus

- Course Description
- Learning Objectives
- Schedule of Topics
- Grading & Assignments

FINANCE FOR TECHNICAL MANAGERS:
SPECIALIZATION SYLLABUS

COURSE DESCRIPTION:

All businesses, whether large, small or brand new, depend on sound decision making when it comes to financial management. Consider the factors involved in deciding whether you should invest in an innovative product development effort, purchase a new piece of equipment to enhance manufacturing efficiency, or even acquire another company. These all involve answering a fundamentally simple question – will this have a positive financial impact on the business.

As Technical Managers, we may believe that such financial decision-making is better left to the Finance & Accounting departments. After all, they are highly trained experts in these matters. Yet today, engineers and scientists are in leadership positions throughout the company, in both technical and non-technical roles. And it's likely *all* these roles involve critical decisions about how much to spend, what costs to reduce, and what investments to make for the future. For example, we need to determine whether we can afford to hire new engineers to join the staff. We are responsible for both acquiring then overseeing the budgets of our projects. We spend a lot of money on R&D to develop new products and services that must have an acceptable rate of return. And we have to determine *which* new products to develop among all the great ideas that our teams come up with. In fact, nearly every decision we make will have some financial impact on the business. As a result, it is vital we ensure our decisions move the business in the right direction – one that keeps it successful well into the future.

In this course, we explore the fundamental principles of financial management. This includes topics such as understanding and interpreting the company's financial statements, the time value of money and its role in evaluating the economic viability of different projects, and the annual capital budgeting process every company performs when selecting which projects to fund. In addition, we'll cover some highly practical topics, such as how to determine product costs, establishing your department's annual budget, and ways of forecasting future sales.

As a side benefit, the quantitative skills you'll learn for your business are identical to the skills necessary to manage your own personal finances. Therefore, we'll extend our analyses to cover investing of mutual funds composed of stocks and bonds, and we'll explore the fascinating area of asset allocation.

COURSE OUTCOME

This is a very practical course that will enable you to assess the financial health of a business while cultivating the quantitative skills necessary to make optimal financial decisions. In addition, you'll learn about investment strategies to help you plan, track and achieve your own personal goals for a secure financial future.

The Course Grading Process…

Financial Challenges	50%
Financial Projects & Peer Reviews:	20%
Short Lesson Quizzes:	10%
Final Exam:	20%
Total Grade:	100%

Grades are based on an absolute point score and not a class curve. Everyone can achieve an "A" in this course.

Module Financial Challenges

Assignments based topics covered in each Module…

Financial challenges occur at the end of each module.

~10 problems per assignment

Several types of questions:

- multiple choice
- true/false
- fill in the blank

Many numerical problems to give you practice with some calculations.

Project Challenges

Project Challenges connect the topics throughout the course into a technically and financially relevant case study.

Projects include:

- Developing the business case for a new product introduction.

Projects are Peer Reviewed:

You review your peers' work and they review your work!

Lesson Quizzes

Lesson Quizzes assess your understanding of the key points for each lesson.

These can occur at the end of each lesson.

3-5 questions per quiz

Several types of questions:

- multiple choice
- true/false
- fill in the blank

Final Exam

The Final Exam assesses your knowledge of all topics covered.

This occurs at the end of the course.

~ 25 questions

Several types of questions:

- multiple choice
- true/false
- fill in the blank

Many numerical problems to test your math and spreadsheet skills.

Let’s Get Started!

Next Time…

Time Value of Money

Credits & References

Slide 1: Looking through lecture notes by pressmaster, Adobe Stock (131199774.jpeg).

Slide 3: Image Source, Michael Readey (2022).

Slide 4: Image Source, Michael Readey (2022).

Slide 5: "Most Amazing High-Definition Image of Earth - Blue Marble 2012" by NASA Goddard Photo and Video is marked with CC BY 2.0.

Slide 9: Schoolboy doing his homework by Artem, Adobe Stock (238429074.jpeg).

Slide 10: Student boy happy after finished homework by bohbeh, Adobe Stock (181803931.jpeg).

Slide 11: A schoolgirl doing homework by rozaivn58, Adobe Stock (322995309.jpeg)

Slide 12: Teenage girl preparing for exams by Alex_Traksel, Adobe Stock (170341395.jpeg).

Slide 13: Are you ready? by Coloures-Pic, Adobe Stock (70535554.jpeg).

Slide 14: Business couple by ra2 studio, Adobe Stock (120306213.jpeg).