Finance and accounting are critical components of any business, but few more so than the business of engineering and construction. A firm could sell a project convincingly, design and/or execute it flawlessly, and have nothing to show for the effort if it doesn’t generate an adequate return, or worse if there are insufficient funds to complete the job. A firm needs adequate capital initially to start and then sufficient cash flow to operate on an ongoing basis. The firm’s clients need financing to build, and the firm executive must have a good understanding of financial statements and accounting to not only be able to evaluate the firm’s financial performance but also to evaluate the financial viability of its clients and projects.

This course will provide an overview of financial statements, how they work together and pertinent for a return on investment (ROI) ratios ROI analysis. The course will discuss to actual project and company financing. We will, from the perspective of a construction firm, its client and the lender, study the different types of capital and ways that a project is financed. The viability of project financing will be studied and assessed from the perspective of a construction firm.

The final stage of the course will focus on developing a project pro forma, detailing the impact of the project on the contractor’s financial statement, and conducting a risk assessment of the project and its financing. Additionally, we will develop a projection / budget model, starting with revenue assumptions and flowing through the income statement, balance sheet, and cash flow statements for the firm. This analysis will include some discussion of depreciation and cost accounting, organizational law / set-up and its impact, and leasing decisions. We will demonstrate returns on capital for the construction firm itself.

**Week 1: Introduction and Overview of Financial Statements (two classes)**

To manage a business or branch and to make knowledgeable decisions involving return on investment (ROI) and the client’s financial suitability, an executive needs to have a good understanding of financial statements (Income Statement, Balance Sheet, and Cash Flow Statement). Financial statements document the performance of the firm and its financial health. Owners, investors, and lenders rely in large part on the financial statements of the firm. Starting with the Income Statement, the class will cover main line items of the statements and how they are linked. Discussion will include example journal entries. Topics covered will also include accrual vs. cash based accounting and GAAP vs tax based accounting. Sample company financial statements will be used for reference.
**Week 2: Tools for Financial Analysis (two classes)**

Different ratio analyses can be used to interpret the financial statements and render them more useful. The class will cover certain profitability and solvency ratios and will show the range of actual statistics from available information from construction firms. Also covered will be how to calculate and interpret return on capital ratios, including cost of capital and net present value. To provide the perspective of the client / owner, we will do a case study assessing the performance of a recent project, including an ROI analysis. The class will cover other applications, including lease vs buy equipment, self-perform, and others.

**Week 3: Project Financing**

**Class 1:** Discussion of project financing will start with an overview of the different types of funding, such as equity, syndicated bank debt, traditional bank debt, and bonds, on-balance sheet funds, including an overview of the draw process that is typically required by the lender. From the owner / developer’s perspective, financial resources are needed to cover the entire project, not just the hard costs or general contract amount required to get the structure built. Depending on the type of project being built, the project could require a significant amount of FFE, soft costs, etc. A Sources and Uses statement unifies the entire budget and all funding for the project – and serves as a balancing mechanism. The class will go over sources and uses examples, as well as construct some of their own.

**Class 2:** Understanding the concerns of the owner and the lender when entering into the financing for a project is important background information for the firm. For example, the firm needs to know what to anticipate, particularly related to the commitment and disbursement of funds. The owner / lender perspective is also useful when communicating the construction status and related issues. The class will identify areas of importance to the owner, lender, and construction firm, as well as provide examples of pitfalls and caveats of which the firm should be aware.

**Week 4: Project Financing**

**Class 1:** This class will be a case study of a recently completed casino project. The financing of the project was difficult, given market timing and the owner, and the construction firm had a significant role in the solution.

**Class 2:** To prepare for the final class assignment, we will cover organizational set-up (LLC, C-Corp, LP, S-Corp), specific depreciation, and other tax issues specific to running a construction or engineering firm and an individual project.
**Week 5:**

**Class 1:** Present a project level pro forma proposal, complete with an assessment of risks related to the client and the project financing (a project loan agreement will be provided to evaluate), a profitability analysis for the firm and its impact on the firm’s financial statements (Profit and Loss and Balance Sheet), and a variance analysis of probability based on risks and opportunities.

**Class 2:** Present a branch office pro forma proposal, complete with integrated financial projections showing investment need and return on investment based on a set of assumptions for projects, revenue, and expenses, including a variance analysis based on risks and opportunities. The class will identify the backdrop for project level and branch level pro formas from real-time working experience and/or a set of assumptions / constraints.

**Reading:** Textbook for certain topics and articles to be assigned

**Software:** Microsoft Excel

**Grading:**

- Class Participation and Assignments: 45%
- Midterm Exam: 15%
- Final Assignment and Presentation: 40%