

**MGT 2410 : Quantitative Analysis for Business Decision Making**

<b>2023 Summer Session</b>	
<b>Total Class Sessions: 25</b> <b>Class Sessions Per Week: 5</b> <b>Total Weeks: 5</b> <b>Class Session Length (Minutes): 145</b> <b>Credit Hours: 4</b>	<b>Instructor: Staff</b> <b>Classroom: TBA</b> <b>Office Hours: TBA</b> <b>Language: English</b>

**Course Description:**

This course will enable students to understand the framework of quantitative techniques in relation to business decision making, performance and growth. Moreover, this course will provide students with deep understanding of recognizing the problem and use quantitative techniques to solve the problem in a global business environment.

This course is different from other business courses because it has an eye on decision making, developing strategy, knowledge of management, marketing, technology and innovation related to quantitative analysis for business decision making.

**Course Objective:**

The objective of this course is to provide students a thorough review of the importance of Quantitative Analysis for business decision making with the help of wide variety of learning recourses (textbook, case studies from Harvard Business Review, Project report, and on-going assessments and exams. The students will develop the skills to calculate and analyze different financial indicators, critically evaluate the assumptions and limitations of different techniques.

**Course Materials:**

Quantitative Analysis for Management, By Render, Stair, hanna, & Hale (12th Ed)

**Course Assignments:**

<b>S.No:</b>	<b>Assessment Task (e.g. essay, test, group project, examination etc.)</b>	<b>Week Due</b>	<b>Proportion of Final Assessment/Marks</b>
1	5 Quizzes	1, 2, 3, 4,5	5
2	Assignments	2, 4	10
3	Project Report	4	10
4	One Mid-Term	3	25
5r	Final Exam	5	50

**Assessment Task Description:**

## a) Quizzes

Quizzes will be based on theoretical concepts and their applications. They will be combination of both descriptive and calculation based in nature.

## b) Assignment

Students will be required to write assignment, where they will extract the data from the book, to analyze the financial indicator. And they will also be given the practice problems as assignment.

## c) Project

Students have to apply basic financial model to value the project. Through this project their written communication skills will be checked through reports. The project detailed guidelines will be provided when the project is assigned.

## d) Mid-Term

The midterm exam will consist on multiple choice questions, fill in the blanks, numeric problems, conceptual questions and short case studies to solve. The answers must be concise, to the point and clear.

## e) Final Exam

The final exam pattern will be same as midterm exam and will cover the whole course outline concepts covered in lectures.

**Grading Scale (percentage):**

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
98-	93-	90-	88-	83-	80-	78-	73-	70-	68-	63-	60-	<60
100	97	92	89	87	82	79	77	72	69	67	62	

**Course Format and Requirements:**

Format of this course is mainly lectures, together with in-class discussions, quizzes, case study, essay and presentations. Lectures will also often include material beyond what is included in the text. The student is expected to prepare reading before each class. Regular attendance is essential. In order to get the full value of any course taken, students must attend no less than eighty percent (80%) of the classes scheduled for the course. More than 20% unexcused absences will result in a lower final grade.

**Academic Integrity:**

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Chengdu University of Technology's *Academic Conduct Code*. Any work



suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

### **Special Needs or Assistance:**

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.

### **Course Schedule:**

Week	Discussion Themes	Assessment tasks
1	<p><b>Introduction to course</b></p> <ul style="list-style-type: none"> <li>○ What is Quantitative Analysis?</li> <li>○ How does it help in decision making?</li> <li>○ Why decision process is important?</li> <li>○ Operations research and decision making</li> <li>○ Examples of application of quantitative methods in decision making</li> </ul> <p><b>Ratios</b></p> <ul style="list-style-type: none"> <li>○ What is Ratio?</li> <li>○ How to use ratios in decision making?</li> </ul> <p><b>Proportions</b></p> <ul style="list-style-type: none"> <li>○ What is proportion?</li> <li>○ Properties of proportions?</li> <li>○ How to use proportions in decision making?</li> </ul> <p><b>Percentages</b></p> <ul style="list-style-type: none"> <li>○ What is Percentage?</li> <li>○ How to use percentages in decision making?</li> </ul> <p><b>Linear system and Modeling</b></p> <ul style="list-style-type: none"> <li>○ Linear Programming: Basics</li> <li>○ Linear Programming models</li> <li>○ Applications of linear systems and Modeling</li> </ul>	<p>-Quiz1</p> <p>-Practice Problems</p> <p>-Homework 1</p>



2	<p><b>Cost-Volume-Profit Contribution Margin</b></p> <ul style="list-style-type: none"><li>○ The Basic of CVP</li><li>○ CVP in equation</li><li>○ CVP in graph</li><li>○ CM ration</li><li>○ Applications of CVP</li><li>○ Target profit break even</li><li>○ CVP consideration in choosing a cost structure</li></ul> <p><b>Trade discounts, Markups &amp; Markdowns</b></p> <ul style="list-style-type: none"><li>○ What is trade discount?</li><li>○ Equivalent single rates of discount</li><li>○ Cash discount</li><li>○ Most common methods of cash discount</li><li>○ What is Markup?</li><li>○ Markups based on selling price</li><li>○ Markups based on Cost</li><li>○ What is Markdown?</li></ul> <p><b>Simple Interest Applications</b></p> <ul style="list-style-type: none"><li>○ Time Lines</li><li>○ Simple interest basic</li><li>○ Applications of Simple interest rate in Business</li><li>○ Interest and balances of demand loans</li><li>○ Lines of credit and card loans</li><li>○ Repayment schedules</li><li>○ Maturity value computation</li></ul>	<p>-Quiz2</p> <p>-Practice Problems</p> <p>-Homework 2</p> <p>-Assignment 1</p> <p>-Project Report</p>
3	<p><b>Compound Interest and Further topics</b></p> <ul style="list-style-type: none"><li>○ Compounding interest rates</li><li>○ Future value of investment</li><li>○ Conversion periods and equated dates</li><li>○ Periodic and nominal rates of interest</li><li>○ Effective and equivalent rates of interest</li></ul> <p><b>Future Value and Present value</b></p> <ul style="list-style-type: none"><li>○ Future value</li><li>○ Compounding Process</li><li>○ Present value</li><li>○ Present value ordinary and annuity due</li><li>○ Uneven cash flow</li><li>○ Future value of uneven cash flow stream</li><li>○ Semiannual and compounding period</li></ul>	<p>-Quiz3</p> <p>-Practice Problems</p> <p>-Homework 3</p> <p>-Midterm</p>



	<ul style="list-style-type: none"><li>○ Fractional time period</li><li>○ Amortized Loan</li><li>○ Amortization Schedule</li><li>○ Practice Problems</li></ul> <b>Ordinary Simple Annuities</b> <ul style="list-style-type: none"><li>○ Ordinary simple Annuities</li><li>○ FV for Ordinary simple Annuities</li><li>○ PV for Ordinary simple Annuities</li><li>○ Payment for Ordinary simple Annuities</li><li>○ Number of periods for Ordinary simple Annuities</li><li>○ Interest rate for Ordinary simple Annuities</li></ul>	
4	<b>Ordinary general Annuities</b> <ul style="list-style-type: none"><li>○ Ordinary general Annuities</li><li>○ FV for Ordinary general Annuities</li><li>○ PV for Ordinary general Annuities</li><li>○ Payment for Ordinary general Annuities</li><li>○ Number of periods for Ordinary general Annuities</li><li>○ Interest rate for Ordinary general Annuities</li></ul> <b>Annuity Due, Deferred Annuities, and Perpetuities</b> <ul style="list-style-type: none"><li>○ FV, PV, periodic payment, term, and Interest rate for simple annuities due</li><li>○ FV, PV, periodic payment, term, and Interest rate for general annuities due</li><li>○ FV, PV, periodic payment, term, and Interest rate for ordinary deferred annuities</li><li>○ FV, PV, periodic payment, term, and Interest rate for deferred annuities due</li><li>○ FV, PV, periodic payment, term, and Interest rate for perpetuities, perpetuities due, deferred perpetuities.</li></ul>	<ul style="list-style-type: none"><li>-Quiz4</li><li>-Practice Problems</li><li>-Homework 4</li><li>-Assignment 2</li><li>-Project Report</li></ul>
5	<b>Amortization Loans and Mortgages</b> <ul style="list-style-type: none"><li>○ Amortization of debts (simple annuities, size of periodic payments, outstanding balance, interest due)</li><li>○ Amortization schedule</li><li>○ Effective interest rate for fixed-rate residential mortgages.</li><li>○ Periodic payments for fixed-rate mortgages and for demand mortgages.</li><li>○ Statements of various mortgage types</li></ul> <b>Bond Valuation and Sinking Funds</b> <ul style="list-style-type: none"><li>○ What is bond valuation?</li></ul>	<ul style="list-style-type: none"><li>-Quiz5</li><li>-Practice Problems</li><li>-Homework 5</li><li>-Final Exam</li></ul>



	<ul style="list-style-type: none"><li>○ Purchase prices for bonds</li><li>○ Premiums and discounts on bonds</li><li>○ Bond schedules</li><li>○ Amortization of premiums and accumulation of discounts</li><li>○ Yield rate for bonds</li><li>○ Sinking fund computations (simple annuities, size of periodic payments, outstanding balance, interest due)</li><li>○ Partial sinking fund schedules</li></ul>	
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