CMT LEVEL II CURRICULUM

2021

CHARTERED MARKET TECHNICIAN EXAM

THE THEORY AND ANALYSIS OF **TECHNICAL ANALYSIS**

CMT ASSOCIATION
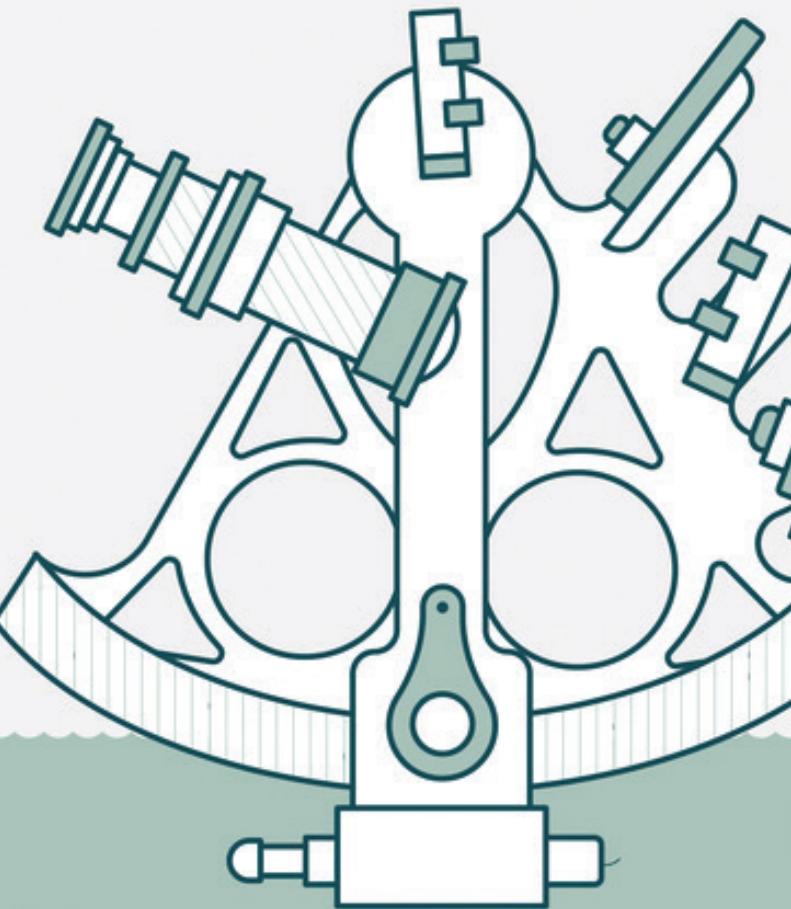
WILEY

2020 Curriculum		2021 Curriculum
Level II. The Theory and Analysis of Technical Analysis	**New for 2021**	**Level II. The Theory and Analysis of Technical Analysis**
Section I: Chart Development and Analysis	~~Removed for 2021~~	Section I: Chart Development and Analysis

1. **Charting**

Explain the six basic tenets of Dow Theory

Diagram the three phases of bull and bear markets

Differentiate between primary, secondary, and minor trends

Examine a chart for support and resistance

Demonstrate the use of trendlines in identifying trends, support and resistance, and channels

Interpret trend signals using trendlines

Compare different types of gaps and their significance

Contrast various continuation patterns and reversal patterns

Draw examples of various top formations and bottom formations

Apply price objectives to various chart pattern and trend breakouts

Interpret candlestick formations for signals

NEW First Lesson 1. **Charts - Understanding Data Intervals**

Employ a sequence of multiple data intervals to identify trends

Compare the typical construction of weekly and monthly interval charts

Review challenges related to consistent data sampling using time-based intraday intervals

Interpret general trend relationships in charts with multiple price-data sets

Interpret the significance of the data points in a scatter plot

NEW Lesson 2. **Additional Charting Methods**

Describe the construction of the types of charts in this chapter

Compare the axes and intervals of these charts

Analyze trends and price action using these charts

Demonstrate how point-and-figure charts help minimize "noise"

Distinguish between charts with defined and undefined x-axes

State the basic principles behind Market Profile

2020 Curriculum		2021 Curriculum
Section I: Chart Development and Analysis		**Section I: Chart Development and Analysis**

2. Moving Averages

Contrast various types of moving averages used in trend analysis

Illustrate four ways moving averages are used by technicians

Analyze trend movement using Directional Movement Indicators

Compare common envelope, channel and band indicators

3. Time-Based Trend Calculations

Examine methods for forecasting price direction

Calculate a simple approach to momentum

Inventory various weighting methods for moving averages

Explain the drop-off effect and its impact on technical indicators

4. Trend Systems Part 1

Explain three reasons why trend systems work

Demonstrate appropriate asset selections based on trend and forecast

Diagram how buy and sell signals are used with indicators and tools for measuring trend, such as: Moving Averages, Bollinger Bands, Keltner Channels, Percentage Bands, Volatility Bands, and combinations of bands and other indicators

Illustrate use of the 10-day moving average rule in a trading system

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5. **Trend Systems Part 2**

   Analyze how a trader or investor would go about selecting the right moving average, trend method, and speed

   Compare the role of each moving average in a two-trend or three-trend method of trading

   Contrast two general rules for generating an exit signal when using moving averages, and explain which one of the two is considered better than the other

   Describe the "Golden Cross" and the "Death Cross"

6. **Momentum and Oscillators**

   Differentiate between momentum and rate of change studies in technical analysis

   Distinguish among various calculations of momentum

   Demonstrate use of momentum for trend indication and associated signals

   Demonstrate use of momentum for finding price extremes and associated signals

   Illustrate the use of MACD to generate trading signals

   Compare various oscillators and their trading signals including RSI, stochastics and TRIX

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Section I: Chart Development and Analysis

Lesson # Change 6. **Trend Systems Part 2**

   Analyze how a trader or investor would go about selecting the right moving average, trend method, and speed

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Lesson # Change 7. **Momentum and Oscillators**

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   Illustrate the use of MACD to generate trading signals

   Compare various oscillators and their trading signals including RSI, stochastics and TRIX

NEW Lesson 8. **Price Trends and Volume**

   Describe the four phases of price-volume trends

   Interpret volume in the context of price trends

   Interpret price and volume to identify the current phase

2020 Curriculum	2021 Curriculum
Section I: Chart Development and Analysis	**Section I: Chart Development and Analysis**

7. Volume, Open Interest, and Breadth

Use standard interpretation of volume and open interest in the context of price trends in stocks and futures

Compare various volume indicators such as On-Balance Volume, Accumulation Distribution and VWAP

Analyze changes in breadth in the context of price trends

Interpret breadth indicators such as the McClellan Oscillator

Interpret indicators that combine breadth with volume such as Arms Index and Thrust Oscillator

Examine approaches to incorporating volume and breadth into systematic methods

8. Bar Chart Patterns

Critique the controversy over whether tradeable patterns exist in technical analysis

Discuss the influence that computer technology has had on the study of patterns

Diagram classic chart patterns such as triangles, and double and triple tops and bottoms

Draw rounding chart patterns such as head-and-shoulders

Illustrate "half-mast" chart patterns such as flags and pennants

Demonstrate methods for determining price objectives from patterns

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Use standard interpretation of volume and open interest in the context of price trends in stocks and futures

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Section I: Chart Development and Analysis	**Section I: Chart Development and Analysis**

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Section I: Chart Development and Analysis

9. Short Term Patterns

Analyze reversals in longer-term trends using short-term price patterns

Interpret the significance of various types of gaps that occur on price charts

Compare and analyze wide-range and narrow-range bars and their implications for volatility

Diagram one and two-bar reversal patterns

Draw common candlestick patterns and analyze their significance within a trend

10. Single Candle Lines

Interpret market psychology from candle shapes

Diagram and interpret notable individual candles: hammer, hanging man, doji and others in this chapter

Demonstrate the importance of such candles in the context of trends

Differentiate between the buying and selling activity represented by real bodies and shadows in these candles

11. Multi-Candle Patterns

Diagram and interpret notable patterns formed by multiple candles: engulfing, stars, windows and others in this chapter

Demonstrate the importance of the prevailing trend when interpreting candle patterns

Differentiate between the buying and selling activity represented by real bodies and shadows in these candle patterns

Interpret candle patterns for support and resistance

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Section I: Chart Development and Analysis

Lesson # Change **11. Short Term Patterns**

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Lesson # Change **12. Single Candle Lines**

Interpret market psychology from candle shapes

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2020 Curriculum	2021 Curriculum
Section I: Chart Development and Analysis	**Section I: Chart Development and Analysis**

12. Candle Pattern Forecasting and Trading Techniques

Analyze candle patterns on charts for indications of trend reversal and continuation

Interpret candle patterns for support and resistance indications and confirmation

Illustrate how to combine Western chart analysis with candles

Employ candlestick analysis for risk management

Demonstrate using candles in multiple time frames

13. Concepts in Cycle Theory

Illustrate the causes of the "mid-cycle dip" and "3/4 cycle high"

Analyze the implications of an inversion

Examine the cyclical explanation for rounded tops and "V-bottoms"

Interpret the implications of left and right translation

Calculate a centered moving average (CMA) envelope

Demonstrate the use of a valid trend line (VTL)

14. Applied Cycle Analysis

Diagram the steps to a comprehensive cycle analysis

Differentiate tools that find cycles from tools that phase cycles

Illustrate how to identify a dominant cycle with a spectrogram

Compare the phasing of smaller harmonics to larger harmonics

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Compare the phasing of smaller harmonics to larger harmonics

2020 Curriculum		2021 Curriculum
Section II: Volatility Measures in Today's Financial Markets		**Section II: Volatility Measures in Today's Financial Markets**

15. Options

Explain the purpose of options markets

List the major terms of an option contract

Describe "the Greeks"

Define implied volatility

16. Understanding Implied Volatility

Contrast historical and implied volatility when used in price analysis and forecasting

Interpret implied volatility as the market's estimate of possible future asset prices

Calculate single-day implied volatility

List the inputs to an option pricing model

17. About the VIX Index

Explain how the VIX is impacted by put-call parity and options supply

Interpret VIX as an indication of market sentiment

Interpret changes in VIX as part of a market forecast

Calculate expected 30-day movement of an index or a stock

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Explain the purpose of options markets

List the major terms of an option contract

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2020 Curriculum		2021 Curriculum
Section III: Topics in Behavioral Finance		**Section III: Topics in Behavioral Finance**

18. Prospect Theory

Compare utility theory and prospect theory

Describe loss aversion

Describe the single greatest limitation of prospect theory

Lesson # Change **20. Prospect Theory**

Compare utility theory and prospect theory

Describe loss aversion

Describe the single greatest limitation of prospect theory

19. Perception Biases

Describe each of the four perception biases covered in this chapter

Illustrate how each of these biases might affect investor behavior

Lesson # Change **21. Perception Biases**

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20. Inertial Effects

Describe each of the three inertial effects covered in this chapter

Illustrate how each of these might affect investor behavior

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21. Analyzing Sentiment in the Stock Market

Analyze the impact of insider activity on a security's price action

Compare insider buying vs insider selling

Analyze short interest and the short interest ratio

Interpret sentiment as drawn from surveys of investors and professionals

Lesson # Change **23. Analyzing Sentiment in the Stock Market**

Analyze the impact of insider activity on a security's price action

Compare insider buying vs insider selling

Analyze short interest and the short interest ratio

Interpret sentiment as drawn from surveys of investors and professionals

22. Analyzing Sentiment in Derivatives Markets

Interpret changes in futures open interest in the context of price action

Analyze the Commitments of Traders report

Employ options put/call ratios as sentiment indicators

Interpret volatility data drawn from the options market

Lesson # Change **24. Analyzing Sentiment in Derivatives Markets**

Interpret changes in futures open interest in the context of price action

Analyze the Commitments of Traders report

Employ options put/call ratios as sentiment indicators

Interpret volatility data drawn from the options market

2020 Curriculum		2021 Curriculum
Section IV: Statistical Applications for Technical Analysis		**Section IV: Statistical Applications for Technical Analysis**

23. Inferential Statistics

  Compare descriptive and inferential statistics

  Demonstrate the use of hypothesis testing to frame statistical tests

  Explain confidence intervals, statistical significance and the base rate fallacy

  Compare coefficients of correlation and determination

  Differentiate between correlation and causation

  Examine the use of regression analysis in technical studies

24. Correlation

  Compare Pearson's and Spearman's methods

  Describe the importance of linearity and normality to useful correlation studies

  Analyze the effect of outliers on a regression study

25. Regression

  Interpret values generated by regression, multiple regression and tolerance calculations

  Demonstrate the process of selecting meaningful predictor variables for multiple regression studies

26. Regression Analysis

  Analyze the concept behind the ARIMA method

  Describe the ARIMA process

  Employ the results of the ARIMA forecast to generate trading signals

  Demonstrate use of linear regression to generate trading signals

  Illustrate the use of linear regression for relative strength studies

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  Employ the results of the ARIMA forecast to generate trading signals

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  Illustrate the use of linear regression for relative strength studies

2020 Curriculum		2021 Curriculum
Section V: Technical Methods and Market Selection		**Section V: Technical Methods and Market Selection**

27. Selection of Markets and Issues

Differentiate between buy-and-hold, position, swing and day trading and the use of technical analysis in each

Compare significant factors in trading stocks versus futures

Distinguish between bottom-up and top-down approaches

Contrast secular and cyclical emphasis

Explain the basic concepts of intermarket analysis

Explain the principles behind relative strength analysis

Compare four methods for calculating relative strength

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Differentiate between buy-and-hold, position, swing and day trading and the use of technical analysis in each

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28. Intermarket Analysis

Interpret the rotation of stocks, bonds and commodities in the typical business cycle

Describe methods of determining intermarket relationships

Illustrate the importance of measuring correlation for portfolio diversification and asset selection

Lesson # Change   **30. Intermarket Analysis**

Interpret the rotation of stocks, bonds and commodities in the typical business cycle

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29. Relative Strength Strategies for Investing

Illustrate a general approach to a momentum strategy using relative strength

Analyze the use of hedging and non-correlated assets in a long-only relative strength model

Lesson # Change   **31. Relative Strength Strategies for Investing**

Illustrate a general approach to a momentum strategy using relative strength

Analyze the use of hedging and non-correlated assets in a long-only relative strength model

2020 Curriculum		2021 Curriculum
Section V: Technical Methods and Market Selection		**Section V: Technical Methods and Market Selection**

30. A Stock Market Model

Define an environmental model

Contrast internal and external indicators

Sketch the basic components of Davis' Fab Five model

Lesson # Change   **32. A Stock Market Model**

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31. A Simple Model For Bonds

Categorize each of the four indicators in Zweig's original model as internal or external

Categorize the additional indicator in the modified version as internal or external, trend following or mean reversion

Lesson # Change   **33. A Simple Model For Bonds**

Categorize each of the four indicators in Zweig's original model as internal or external

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32. Perspectives on Active and Passive Money Management

Differentiate between alpha and beta

Compare the Efficient Market Hypothesis with general concepts in behavioral finance and with the Adaptive Markets Hypothesis

Lesson # Change   **34. Perspectives on Active and Passive Money Management**

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2020 Curriculum		2021 Curriculum
Section VI: Designing and Testing Technical Trading Systems		**Section VI: Designing and Testing Technical Trading Systems**

33. The Statistics of Backtesting

Analyze the statistical challenges faced when backtesting

Appraise four important statistical features of time-series price data

Illustrate why log returns are often used in backtesting

Analyze three statistical concerns in backtesting

Differentiate between signal testing and backtesting

34. The Scientific Method and Technical Analysis

Examine the possibilities and challenges of applying the scientific method to traditional technical analysis

Analyze the three forms of the EMH as to their information content

Explain "null hypothesis" as used in the scientific method

State the five stages of the hypothetico-deductive method

Critique the three consequences, articulated in this chapter, of adopting the scientific method in technical analysis

35. Theories of Nonrandom Price Motion

Analyze why the existence of nonrandom price motion is a premise of technical analysis

Describe an "efficient market"

Analyze behavioral finance as a theory of nonrandom price motion

Illustrate the two foundations of behavioral finance

Interpret feedback loops in price action

Lesson # Change **35. The Statistics of Backtesting**

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2020 Curriculum		2021 Curriculum

Section VI: Designing and Testing Technical Trading Systems

Section VI: Designing and Testing Technical Trading Systems

36. Case Study of Rule Data Mining for the S&P 500

Lesson # Change **38. Case Study of Rule Data Mining for the S&P 500**

Examine data mining and data-mining bias in testing trading rules

Define and examine data-snooping bias in testing trading rules

Examine data mining and data-mining bias in testing trading rules

Define and examine data-snooping bias in testing trading rules

37. System Design and Testing

Lesson # Change **39. System Design and Testing**

Differentiate between discretionary and nondiscretionary systems

Illustrate the advantages and disadvantages of nondiscretionary trading systems

Inventory the five initial decisions for constructing a trading system per the authors of this chapter

Distinguish between four types of technical trading systems

Compare various metrics for evaluating trading systems such as profit factor, percent profitable and average trade net profit

Differentiate between methods of optimization

Define "robustness" as it applies to trading systems

Examine risk-adjusted performance metrics such as Sharpe, Sterling and Sortino ratios

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