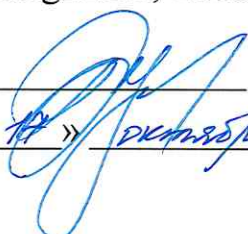


Ministry of Science and Higher Education of the Russian Federation
Peter the Great St. Petersburg Polytechnic University

Institute of Industrial Management, Economics and Trade

APPROVED

Director of the Institute of Industrial
Management, Economics and Trade

 V.E. Shchepinin
« 14 » декабря 2024

PROGRAM

**of the admission exam for the applicants to the master's degree
in the field of study / educational program**

38.04.01 Economics / 38.04.01_27 Quantitative Finance

Code and name of the field of study / educational program

St. Petersburg
2024

ABSTRACT

The program includes a list of topics (questions) on subjects of the basic part of the professional block in the field of **38.03.00 Economics and Management**, which are included in the content of the admission exam for the master program.

The admission exam is evaluated on a **100-point scale** and consists of two subjects:

- Financial statement analysis
- Financial management

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The program is reviewed and recommended for publication by the methodological council of the **Institute of Industrial Management, Economics and Trade** (protocol № 3 date «16» October 2024).

1. SUBJECTS INCLUDED IN THE INTERDISCIPLINARY EXAM PROGRAM

1.1. Financial statement analysis

1.2. Financial management

2. CONTENT OF SUBJECTS

2.1. Financial statement analysis

1. The financial statements (the balance sheet, the income statement, the statement of cash flows)
2. Assets
3. Liabilities and Equity
4. EBITDA, EBIAT, EBIT, EBT, Net Income
5. Cash Flow from Operations
6. Cash Flow from Investments
7. Cash Flow from Financing Activities
8. Goals of Financial Analysis
9. Cross-sectional analysis
10. Vertical analysis
11. Horizontal analysis
12. Profitability ratios (Return on Equity, Return on Assets, Return on Investment, Gross Profit Margin, Operating Profit Margin, Net Profit Margin)
13. Liquidity ratios (Net Working Capital Ratio, Current Ratio, Quick Ratio)
14. Activity ratios (Inventory Turnover, Accounts Receivables Turnover, Total Asset Turnover, Average Collection Period)
15. Financing ratios (Debt Ratio, Debt-Equity Ratio, Times Interest Earned Ratio)
16. Market ratios (Earnings per Share, Price Earnings, Market to Book)
17. Dividend ratios (Dividend Yield, Dividend Payout Ratio)
18. Cash flow vs. Profit
19. Du Pont Ratio Analysis
20. Accounting Profit vs. Economic Profit
21. The contents of an annual report

Study Literature:

1. Thomas, R. R., van Greuning, H., Henry, E., & Michael, A. B. (2009). International financial statement analysis. John Wiley & Sons.
2. Fridson, M. S., & Alvarez, F. (2022). Financial statement analysis: a practitioner's guide. John Wiley & Sons.

2.2. Financial management

1. The four types of firms (sole proprietorships, partnerships, limited liability companies, corporations)
2. Ownership versus control of corporations

3. The stock market (primary and secondary stock markets)
4. The time value of money (three rules of time travel, valuing a stream of cash flows, perpetuities and annuities, non-annual cash flows)
5. Interest rates (interest rate quotes and adjustments, the determinants of interest rates, the opportunity cost of capital)
6. Valuing bonds (bond cash flows, prices and yields)
7. Investment decision rules (NPV, IRR, PB, PI)
8. Valuing stocks (dividend-discount model, share repurchases and total payout model, discounted free cash flow model)
9. Risk and return (common measures of risk and return, trade-off between risk and return, diversification in stock portfolios)
10. Arbitrage pricing theory
11. Capital asset pricing model
12. Estimating the cost of capital (the equity cost of capital, the debt cost of capital)
13. Capital structure in a perfect market (equity versus debt financing, Modigliani-Miller theory)
14. Financial distress costs, taxes and firm value
15. Trade-off theory (optimal capital structure)
16. Pecking Order of Financing Alternatives
17. Leverage
18. Weighted average cost of capital
19. Valuing companies (income approach, market approach, cost approach)
20. Payout policy (distributions to shareholders, tax disadvantage of dividends, signaling)
21. Corporate governance (agency costs, monitoring by the board directors and others, compensation policies, managing agency conflict, regulation)

Study Literature:

1. Berk, J., DeMarzo, P. (2014). *Corporate Finance*. 3rd Edition. Pearson Education. – 1141 p.
2. Brealy, R., Myers, S., Allen, F. (2014). *Principles of Corporate Finance*. Eleventh Global Edition. – 1005 p.
3. Damodaran, A. (2010). *Applied corporate finance*. John Wiley & Sons.

3. EXAMPLE OF THE INTERDISCIPLINARY EXAM

Peter the Great St. Petersburg Polytechnic University
Institute of Industrial Management, Economics and Trade

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Supervisor of the Educational
Program

«_____» _____ 2024

INTERDISCIPLINARY EXAM

field of study / educational program

38.04.01 Economics / 38.04.01_27 Quantitative Finance

Code and name of the field of study / educational program

QUESTIONS

SUBJECT FINANCIAL STATEMENT ANALYSIS

Question	Answer	Number of points
1) What statement is associated with costs and expenses associated with earning the revenue? 1. Income statement; 2. Balance sheet; 3. Statement of cash flows; 4. Assets.	1	3
2) Does total assets always equal total liabilities and shareholders' equity? 1. Yes; 2. No; 3. It depends on the company; 4. It depends on the industry.	1	3
3) The company has \$ 2000 Total assets and 150\$ net income. Return on Assets equals to: 1. 7.5 %; 2. 13.34%; 3. 300%; 4. \$ 1850.	1	3
4) ...		
5) ...		
n) ...		

SUBJECT FINANCIAL MANAGERMENT

Question	Answer	Number of points
1) How to measure risk? 1. Expected value; 2. Variance; 3. Internal rate of return; 4. Standard Error.	2	3
2) What does the abbreviation NPV mean in investment analysis? 1. Net Present Value; 2. Net Predicted Variance; 3. Negative Present Value; 4. Negative Predictive Value.	1	3
3) How to calculate the future value of money? 1. $FV = PV \cdot (1-i)^n$; 2. $FV = PV / (1+i)^n$; 3. $FV = PV \cdot (1+i)^n$; 4. $FV = PV / (1-i)^n$.	3	3
4) ...		
5) ...		
n) ...		

4. CRITERIA FOR EVALUATION OF ADMISSION EXAM

The admission exam is a set of tasks reflecting the content of two subjects:

- Financial statement analysis (block 1) – 47 points.
- Financial management (block 2) – 53 points.

Tasks are completed in English without the use of educational materials.

Types of tasks.

The tasks can be the two types:

- closed test tasks in which the applicant should choose one correct answer from the proposed options;
- open tasks in which there are no correct answer options; the applicant should give the only one correct answer independently.

Tasks are divided into two blocks.

Financial statement analysis (block 1) – 47 points.

The number of tasks is 15, including:

- closed test tasks – 13;
- open tasks – 2.

- Financial management (block 2) – 53 points.

The number of tasks is 15, including:

- closed test tasks – 11;
- open tasks – 4.

The total score is 100 points.

Evaluation criteria.

For each correctly solved closed test task, 3 points are assigned.

For each correctly solved open task in the subject Financial statement analysis, 4 points are assigned, in the course Financial Management - 5 points.

If in an open test, there is no final and only correct answer, no points are awarded for the task.

If all answer options in a closed test task are marked as correct, no points are awarded for the test task.