

## **Зміст курсів та інформація про викладачів**

**Пропонований курс включає 30 академічних годин лекцій та практичних занять з математики, економіки та фізики англійською мовою.**

**Предмет:** Math - Математика (10 годин)

Куратор курсу: Волчок Денис Леонідович, кандидат технічних наук, доцент кафедри будівельної механіки та опору матеріалів, викладач англійського проекту.

1. Algebra Refresher. Operations with real Numbers. Exponents and Radicals. Factoring. Long Division. (1 hours)
2. Equations. Linear Equations. Literal Equations. Radical Equations. Quadratic Equations. ( 1 hours )
3. Applications of Equations: Profit. Pricing. Investment. Price - Earnings ratio. Market Equilibrium. Quality Control. ( 1 hours )
4. Inequalities. Applications of Inequalities. Absolute-Value Equations and Inequalities. ( 1 hours )
5. Functions and Graphs. Domain and Range. Special Functions. Combinations of Functions. Composition. Graphs in Rectangular Coordinates. Translations and Reflections. ( 2 hours )
6. Lines and Parabolas. Applications. Demand and Supply Equations. Appreciation and Depreciation. Isocost Line. Isoprofit Line. ( 2 hours )
7. Systems of Linear Equations. A Linear System with Infinitely Many Solutions. A Three-Variable Linear System. Nonlinear Systems. Point of Equilibrium. (1 hours )

8. Exponential Functions. Graphs of Exponential Functions. Compound Interest. Population Growth. ( 1 hours )

9. Logarithmic Functions. Graph of a Logarithmic Function. Properties of Logarithms. Solving Logarithmic and Exponential Equations. (2 hours )

10. Mathematics of Finance. Compound Interest. Doubling Money. Comparing Interest Rates. Savings Account. ( 2 hours )

**Предмет: Economics - Економіка (10 годин)**

Куратор курсу: Гончарова Катерина Володимирівна, кандидат економічних наук, доцент кафедри Міжнародної економіки, співзасновник англomовного проекту викладання дисциплін англійською мовою.

1. The basic economic problem and the function of an economy. Opportunity cost. Production possibility frontier curve. Factors of production. Specialization. Sectors of the economy. Money and markets. ( 2 hours )

2. Demand and supply. Demand curve. Determinants of demand – shifts of the curve. Market demand. Consumer surplus. Supply. Supply curve. Determinants of supply - shifts of the curve. Market supply. Producer surplus. Equilibrium. Changes in equilibrium. Application ( 1 hours )

3. Elasticity and types of goods. Price elasticity of demand. Interpreting elasticity. Determinants of the value of E. Normal, inferior and Giffen goods. Income elasticity. Income and substitution effects. Upward sloping demand curves ( 2 hours )

4. National economic performance. Microeconomics and macroeconomics. Indicators of national economic performance. Government objectives. ( 1 hours )

5. Economic growth and welfare. Business cycles. Output gaps. Causes of economic growth. National income and living standards. Economic growth vs economic development. ( 2 hours)

6. Aggregate Demand. Aggregate Demand curve. Shifts of the Aggregate Demand curve .The multiplier ( 2 hours )

7. Aggregate supply. Aggregate Supply curve – Short-run AS curve. Shifts of the SRAS curve – Long-run classical AS curve. Shifts of the LRAS curve-Long-run Keynesian AS curve. Shifts of the LRAS curve. ( 2 hours)

8. Unemployment and labour market. Demand for labour. Determinants of demand. Supply of labour. Equilibrium in labour market. Elasticity of demand for labour. Elasticity of supply of labour. ( 2 hours)

9. Fiscal and monetary Policy. Fiscal Policy and Aggregate Demand. Supply-side policies. Demand-side policies. ( 2 hours)

### **Предмет: Physics - Фізика (10 годин)**

Куратор курса: Волчок Денис Леонідович, кандидат технічних наук, доцент кафедри будівельної механіки та опору матеріалів, викладач англomовного проекту.

1. Kinematics + Two-Dimensional Kinematics - 2 hours
2. Dynamics: Force and Newton's Laws of Motion - 1 hour
3. Further Applications of Newton's Laws: Friction, Drag, and Elasticity - 1 hour
4. Gravitation and Uniform Circular Motion - 2 hours
5. Linear Momentum and Collisions - 1 hours
6. Work, Energy, and Energy Resources - 1 hours
7. Statics and Torque - 2 hours