

**ENTRANCE EXAMINATION QUESTIONS  
MASTER'S DEGREE PROGRAM IN COMMUNICATION DESIGN  
PETER THE GREAT ST. PETERSBURG POLYTECHNIC UNIVERSITY**

**SUBJECT 1: Computer graphics**

1. Raster graphics. Basic concepts. Advantages and disadvantages.
2. Vector graphics. Basic concepts. Advantages and disadvantages.
3. The concepts of resolution and the resolution capability in computer graphics.
4. Depth of colour. Image classification by colour depth (black and white, grayscale, full colour).
5. Common file formats of raster graphics.
6. Common file formats of vector graphic files.
7. The concept of the colour channels.
8. Colour models. Additive and subtractive models.
9. NURBS-curve
10. Bezier curve. Properties of Bezier curve. The direction of the vector in the Bezier curve.
11. Bezier curve. Elements of curve, types of control points.
12. Fonts and the areas where they are used. Font formats (PostScript, TrueType, OpenType)
13. Rasterization of fonts. Definition. Rasterization algorithms. Problems of rasterization.
14. The concept of computer font. Types of computer fonts (bitmap, vector).
15. Image information compression algorithms (lossless, lossy).
16. Fractal graphics.

**SUBJECT 2: Design History**

1. The main stages of industrial production development.
2. The emergence of design as a profession.
3. Eclectic XIX century. Victorianism.
4. The "Arts and Crafts" movement. Crafts Revival in Russia.
5. Art Nouveau. On the way from art to design.
6. German Werkbund. Corporate Identity of Peter Behrens.
7. Cubism as a source of modernism in graphic design.
8. Italian and Russian Futurism.
9. Dadaism.
10. Soviet Constructivism. Sources and origins.
11. Soviet Constructivism. Main stages.
12. VKHUTEMAS, VKHUTEIN.
13. Neoplastitsizm. De Stijl group.
14. The German Bauhaus.
15. Tschichold's New Typography.
16. Art Deco.
17. Swiss style. 1930-40's.
18. International Style. 1950-70's.

19. Ulm School of Construction.
20. Industrial design in 1950-70's. Braun style and the style of Olivetti.
21. Scandinavian design.
22. Design in USA in 1950-70's.
23. Design in USSR. VNIITE.
24. Postmodernism. Metamorphosis of style.

### **SUBJECT 3: Chromatics**

1. Principal characteristics and properties of colour interrelations.
2. Colour systems.
3. The laws of colour relation in a standard 24-colour wheel.
4. Principles of colour combination harmonies.
5. Psychophysiology of visual colour perception.
6. Psychological associations and symbolism of colours.
7. The role and the use of colour (graphics, object, environment).
8. The main and the possible meanings of colour.
9. Optical illusions.
10. The factors that influence on colour.
11. The meaning of colour in different cultures.
12. The physical and the philosophical meanings of colour.
13. The nature of colour and light.

### **RECOMMENDED LITERATURE:**

1. Adobe Photoshop User Guide
2. Adobe Illustrator User Guide
3. Graphic Design Theory: Readings from the Field, Helen Armstrong
4. Graphic Design: A Concise History, Richard Hollis
5. Design in the USA, Jeffrey L. Meikle
6. The Design History Reader, Grace Lees-Maffei
7. The Art of Color, Johannes Itten
8. Color Theory and Its Application in Art and Design, G. A. Agoston
9. Russian Design history [http://www.designhistory.org/Avant\\_Garde\\_pages/Russia.html](http://www.designhistory.org/Avant_Garde_pages/Russia.html)
10. Russian Design history <http://www.designhistory.com/1920/constructivism/>
11. Made in Russia: Unsung Icons of Soviet Design, Michael Idov