

## COURSE DESCRIPTION

1. *Course title and code:*           **OBJECT-ORIENTED PROGRAMMING (B-03-074)**
2. *Course level:* Bachelor's program, part C.
3. *Credit points:* 2.
4. *Study program title:* Electronics 445232.
5. *Course author:* Hab. Dr. Sc. Eng., Professor E. Kheifets.
6. *Course aims:* is to acquire knowledge about object-oriented programming and design technology and practical skills – how to use class libraries, how to define a class of objects using concrete object-oriented programming language.
7. *Course objectives:* is to acquaint students with the object-oriented conception, basic ideas and their realization in different object-oriented programming languages; to teach object-oriented analysis and design; to give object-oriented programming training, using class libraries for an individual design which consists of number of classes.
8. *Course content:*
  - Object-oriented paradigm, its importance and basic ideas.
  - Abstract data types idea. Object and class concepts.
  - Class hierarchy organization. Encapsulation, inheritance and polymorphism.
  - Static and dynamic names association. Memory organization for objects.
  - Object-oriented analysis steps.
  - Object-oriented design components.
  - Object-oriented design steps.
  - Unified Modeling Language (UML).
  - Object-oriented programming languages comparison.
  - Java programming language. Java toolkit JDK.
  - Java. JDK class hierarchy.
  - Java. Application and applet design in Java environment. HTML language.
  - Java. Interfaces, data structures, graphic tools, threads.
  - Java. Image demonstration problem and its solution.
  - Object-oriented program design in Internet.
9. *Requirements for the students:* During laboratory workshops students complete tasks in accordance to the current topic. There are 5 tasks for laboratory works to be completed during the autumn term, the exam in the winter session and course paper in the spring term.
10. *The course is delivered in the:* English, Russian and Latvian languages.
11. *Literature:*
  - Grady Booch. Object-Oriented Analysis and Design with Applications,-Santa Clara,CA:Rational, Addison-Wesley Longman, Inc.,1994 .
  - Mike Morgan. Using Java 1.2, - QUE, A Division of Macmillan Computer Publishing, USA, 1998. –850 pp.
  - Гради Буч. Объектно-ориентированный анализ проектирование с примерами приложений на С++, 2-е изд. / Пер. с англ. - Москва: Издательство Бином, Санкт-Петербург: Невский диалект, 1999. – 560 с. ил.
  - Нейл Бартлелл, Алекс Лесли, Стив Симкин. Программирование на Java. Путеводитель. – Киев: НИПФ "ДиаСофт Лтд.", 1996. – 736 с.