**Nazwa przedmiotu:**

 Programming 3 (Object-oriented Advanced)

**Koordynator przedmiotu:**

dr inż. Krzysztof Kaczmarski

**Status przedmiotu:**

Obowiązkowy

**Poziom kształcenia:**

Studia I stopnia

**Program:**

Informatyka

**Grupa przedmiotów:**

Wspólne

**Kod przedmiotu:**

P3

**Semestr nominalny:**

3 / rok ak. 2009/2010

**Liczba punktów ECTS:**

5

**Liczba godzin pracy studenta związanych z osiągnięciem efektów uczenia się:**

**Liczba punktów ECTS na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich:**

**Język prowadzenia zajęć:**

polski

**Liczba punktów ECTS, którą student uzyskuje w ramach zajęć o charakterze praktycznym:**

**Formy zajęć i ich wymiar w semestrze:**

|  |  |
| --- | --- |
| Wykład:  | 30h |
| Ćwiczenia:  | 0h |
| Laboratorium:  | 30h |
| Projekt:  | 0h |
| Lekcje komputerowe:  | 0h |

**Wymagania wstępne:**

Object oriented programming, Structural programming.

**Limit liczby studentów:**

**Cel przedmiotu:**

The aim is to show construction and mechanisms of a modern and truly object oriented language on Java example (sometimes in contradiction to C++). Students will be familiar with developing any application using Java from a simple console application to server side servlets.

**Treści kształcenia:**

 The course will discuss advanced techniques of object oriented programming on Java language example. Starting from the principles of Java language (basic data types, defining classes and interfaces, exceptions) goes to advanced topics (reflection mechanism, dynamic objects loading, effective using of garbage collection, generics, enums), multi-threads programming and event models (registering listeners, firing, accepting and rejecting events). Programming using Java libraries and other: threads, monitors, AWT, SWING, JDBC, delegation event model (Model-View-Controller application and components architecture). Using basic JDK tools: javac, javadoc, jar. Writing applets. Transferring data using streams, sockets and urls. Java native interface - platform specific libraries (an example of incorporating C source code). Introduction to Java Beans (designing, creating and dispatching beans) and visual programming. Basic ideas of servlet programming.

**Metody oceny:**

There are 7 obligatory laboratories which must be completed for at least 50%. After that each student prepares a bigger application (using networking, GUI, multi-threading, etc) which is marked at the end of semester. Any delay results in penalty points. The final mark consists in 50% of lab results and in 50% of application mark. Two laboratories may be repeated. There are no other chances to improve the final mark.

**Egzamin:**

**Literatura:**

 1. Ken Arnold, James Gosling The Java Programming Language 2. James Gosling, Bill Joy, Guy Steele The Java Language Specification 3. Tim Lindholm, Frank Yellin The Java Virtual Machine Specification 4. Mary Campione, Kathy Walrath The Java Tutorial: Object-Oriented Programming for the Internet 5. Bruce Eckel Thinking in Java (http://codeguru.earthweb.com/java/tij/ ) 6. Sun Microsystems Inc. http://java.sun.com/docs/, (http://developer.java.sun.com/developer/infodocs/index.shtml) 7. Krzysztof Kaczmarski Programming in Java with Excercises. CEmS 2002, www.mini.pw.edu.pl/~kaczmars/p3

**Witryna www przedmiotu:**

**Uwagi:**

## Efekty przedmiotowe