

**Project Title:** Development of Object-oriented Concepts Extractor: Tools to Support OO Assessment In Programming Education  
**Project No.:** RG047-10ICT  
**Principal Investigator:** Puan Norazlina Khamis  
**Co-researcher (s):** 1) Dr. Zarinah Mohd Kasirun  
2) Puan Norisma Idris  
**Project Duration:** 1 September 2010 – 30 August 2011  
**Amount Granted:** RM 32, 000.00

**Abstract:**

One of the debatable issues in programming courses for core CS and IT education is on how to improve the assessment so it will reflect student's programming skills. In object-oriented programming courses, educators found that there are difficulties in identifying students' implementation of the object-oriented (OO) concept in their source code. Students claim that program is written using object-oriented approach, but yet it is not. Currently, there is no assessment method that will able to identify whether student's is applying OO concept in their program source code. This research will focus on this issue by proposing an assessment tools to support the assessment of programming courses, specifically in object-oriented programming. The tool will be able to identify and extract OO concepts that student's have applied in their program source code. One of the possible techniques that able to extract OO concept from program source code is using the metrics. Metrics are an important technique in quantifying desirable software and software development characteristics of OO software development. Currently, metrics proposed for OO software development have rarely been used to support assessment process. This research will investigate the suitable OO metrics to be applied in the process of developing the extraction tool.