

DOCTORAL (PHD) STUDIES
COURSE UNIT DESCRIPTION

Course unit title	Scientific areas	Faculty	Institute, department
Process assessment and improvement models	Informatics (N 009)	Faculty of Mathematics and Informatics	Institute of Computer Science, Department of Software Engineering

Study method	Number of credits	Study method	Number of credits
Lectures		Consultations	1
Individual work	4	Seminars	2 (Spring sem.)

Summary
<p>The ideas of software process modeling have been successfully applied in other areas also. The aim of the course unit is to master the concepts and principles of process modeling, to familiarize with the requirements for process reference models and assessment models, to acquire knowledge and skills of process assessment.</p> <p><i>The main topics:</i></p> <ol style="list-style-type: none"> 1. Assessment and improvement of process quality characteristics: <ul style="list-style-type: none"> • concepts of process assessment, process assessment models. 2. Standards ISO/IEC 330xx family: <ul style="list-style-type: none"> • process measurement framework ISO/IEC 33003 (process attributes, an example of process capability characteristics definition ISO/IEC 33020: process attributes, process capability levels, rating scale for process capability levels); • ISO/IEC 33004 requirements for models (process reference model, process assessment model, process maturity model); • reference process assessment model: reference model for assessment of software lifecycle processes (ISO/IEC 15504-5), reference model for assessment of system lifecycle processes (ISO/IEC 33060), reference model for assessment of IT services (ISO/IEC 33074), organizational maturity assessment model (ISO/IEC 33081). 3. Process capability assessment according ISO/IEC 33020: <ul style="list-style-type: none"> • definition of target capability profiles, process capability determination, performing process assessment. 4. Process capability improvement according ISO/IEC 33014. 5. CMMI: <ul style="list-style-type: none"> • staged representation, continuous representation, CMMI framework, CMMI models (CMMI for Development, CMMI for Acquisition, CMMI for Services), process assessment according CMMI. 6. FAA-iCMM and ISO/IEC 33071 – integrated process capability assessment models. <p><i>Practical exercise:</i> choose process assessment model and assess some processes of an enterprise.</p>

Main literature
ISO/IEC 33001 Information technology - Process assessment - Concepts and terminology, 2015 (reviewed and confirmed in 2020)
ISO/IEC 33002 Information technology - Process assessment – Requirements for Performing an Assessment, 2015 (reviewed and confirmed in 2020)
ISO/IEC 33003 Information technology - Process assessment – Requirements for process measurement frameworks, 2015 (reviewed and confirmed in 2020)
ISO/IEC 33004 Information technology - Process assessment – Requirements for process reference, process assessment and maturity models, 2015 (reviewed and confirmed in 2020)

ISO/IEC TR 33014 Information technology - Process assessment – Guide for process improvement, 2013
ISO/IEC 33020 Information technology - Process assessment – Process measurement framework for assessment of process capability, 2019
ISO/IEC TS 33060:2020 Information technology — Process assessment — Process assessment model for system life cycle processes, 2020
ISO/IEC 15504-5:2012 Information technology — Process assessment — Part 5: An exemplar software life cycle process assessment model, 2012
ISO/IEC TS 33074:2020 Information technology — Process assessment — Process capability assessment model for service management, 2020
CMMI for Development, Version 1.3. Carnegie Mellon University Software Engineering Institute. 2010
CMMI for Acquisition, Version 1.3. Carnegie Mellon University Software Engineering Institute. 2010
CMMI for Services, Version 1.3. Carnegie Mellon University Software Engineering Institute. 2010
ISO/IEC 33071. An Integrated Model for Enterprise-wide Assessment and Improvement, 2016.
The Federal Aviation Administration. Integrated Capability Maturity Model (FAA-iCMM) version 2.0, 2001

Lecturer(s) (name, surname)	Science degree	Main publications
Romas Baronas	dr.	http://www.elaba.mb.vu.lt/mif/?aut=Romas+Baronas
Stasys Peldžius	dr.	http://www.elaba.mb.vu.lt/mif/?aut=Stasys+Peldžius
Saulius Ragaišis	dr.	http://www.elaba.mb.vu.lt/mif/?aut=Saulius+Ragaišis