Course description

Department/Unit /	KVD / 9PGM3			**Academic Year**	2023/2024
Title	Programming 3			**Type of completion**	Exam
Accredited/Credits	No, 1 Cred.			**Type of completion**	Combined
Number of hours	Lecture 10 [Hours/Semester]				
Occ/max	Status A	Status B	Status C	**Course credit prior to**	NO
Summer semester	6 / -	0 / -	0 / -	**Counted into average**	YES
Winter semester	0 / -	0 / 0	0 / 0	**Min. (B+C) students**	10
Timetable	Yes			**Repeated registration**	NO
Language of instruction	Czech			**Semester taught**	Summer semester
Optional course	Yes			**Internship duration**	0
Evaluation scale	1|2|3|4				
No. of hours of on-premise					
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.				
Periodicity	K				
Substituted course	KVD/CPGM3				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

The aim of this course is to introduce students to advanced problems of object oriented programming with emphasis on the development of applications for education.

Requirements on student

Requirements to receive credit:
Creating of a semester works (semester project) meets the conditions for recognition.
The fulfillment of practical tests.

More information will be provided at the initial lesson and courseware ZČU http://courseware.zcu.cz/ /wps/portal/predmety/kvd/pgm3 section Podmínky absolvování

Content

Object oriented programming from theoretical and practical context.
Improvement of basic knowledge, overload of functions, statics and virtual methods.
Suggestion of the system of classes, abstraction.
Components, hierarchy, utilization.
Suggestion of the application with help of UML model.
Suggestion of extensive multi-applications.
Current possibilities of frameworks for creating applications.
The system of work in the chosen framework.
Didactic principles of teaching object-oriented programming.

Fields of study

Guarantors and lecturers

- **Guarantors:** PhDr. Tomáš Jakeš, Ph.D. (100%)
- **Lecturer:** PhDr. Tomáš Jakeš, Ph.D. (100%), PhDr. Tomáš Přibáň, Ph.D. (100%), Doc. Ing. Zdeněk Ulrych, Ph.D. (100%)
- **Tutorial lecturer:** Mgr. Jan Fadrhonc, Ph.D. (100%), PhDr. Tomáš Jakeš, Ph.D. (100%), PhDr. Tomáš Přibáň, Ph.D. (100%)

Literature

- **Recommended:** DEQUADROS, Miguel. *GameSalad beginners guide a fun, quick, step-by-step guide to creating games with levels, physics, sound and numerous enemies using GameSalad*. Birmingham, 2012. ISBN 1849692238.
- **Recommended:** Knoernschild, Kirk. *Java application architecture : modularity patterns with examples using OSGi*. Upper Saddle River : Prentice Hall, 2012. ISBN 978-0-321-24713-1.
- **Recommended:** BORKWOOD, Innes. *Learning Stencyl 3.x game development beginner's guide: a fast-paced, hands-on guide for developing a feature-complete video game on almost any desktop computer, without writing a single line of computer code*. Birmingham, 2013. ISBN 9781849695961.
- **Recommended:** Cantú, Marco. *Myslíme v jazyku Delphi 7 : knihovna zkušeného programátora*. 1. vyd. Praha : Grada Publishing, 2003. ISBN 80-247-0694-6.
- **Recommended:** Keogh, James Edward; Giannini, Mario. *OOP bez předchozích znalostí : průvodce pro samouky*. Vyd. 1. Brno : Computer Press, 2006. ISBN 80-251-0973-9.
- **Recommended:** Lutz, Mark. *Programming Python*. 4th ed. Sebastopol : O'Reilly, 2011. ISBN 978-0-596-15810-1.
- **Recommended:** Lacko, Ľuboslav. *Vývoj aplikací pro Android*. 1. vydání. 2015. ISBN 978-80-251-4347-6.
- **Recommended:** Grusová, Lucie. *XML pro úplné začátečníky*. Vyd. 1. Praha : Computer Press, 2002. ISBN 80-7226-697-7.
- **Recommended:** Svoboda, Luděk. *1001 tipů a triků pro Delphi*. 2. aktualiz. vyd. Brno : Computer Press, 2003. ISBN 80-7226-488-5.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Individual project (40)	38
Contact hours	13
Preparation for formative assessments (2-20)	6
Presentation preparation (report) (1-10)	2
Practical training (number of hours)	26
Total:	**85**

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

Test

Skills demonstration during practicum

Seminar work

Individual presentation at a seminar

Continuous assessment

Project

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

Knowledge of basic characteristics of OOP (heritage, polymorphism, encapsulation), data structure, cycles, conditions, subprograms and other basic skills in the field of programming.

Further are assumed skills on the level of subject KVD/PGM1P and KVD/PGM2B from bachelor program.

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

Lecture

Lecture with visual aids

Practicum

E-learning

Multimedia supported teaching

Task-based study method

Skills demonstration

Project-based instruction

Individual study

Students' portfolio

learning outcomes

Knowledge - knowledge resulting from the course:

Student is oriented in problem of encapsulation, heritage, polymorphism, abstraction, objects and class, terms can interpret and apply in the creation of programs

Student knows how to design suitable system of classes for solution of suggested problem. He observes principles of object oriented programming (OOP).

Student is able to use overload methods.

Student is able to design and use own component.

Student is able to explain the problem of parallel programming.

Student will create functional and user friendly application according selected theme. Further he is able to represent his application and specify advantages.

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
.	Lifelong learning	Combined	Rozšiřující studium výpočetní techniky a informatiky pro SŠ	1	3	2023	Povinné předměty	A	3	LS
.	Lifelong learning	Combined	Rozšiřující studium výpočetní techniky a informatiky pro SŠ	1	4	2023	Povinné předměty	A	3	LS
.	Lifelong learning	Combined	Rozšiřující studium výpočetní techniky a informatiky pro SŠ (pro absolventy Výpočetní techniky a informatiky pro 2.st. ZŠ)	1	3	2023	Povinné předměty	A	1	LS
.	Lifelong learning	Combined	Rozšiřující studium výpočetní techniky a informatiky pro SŠ (pro absolventy Výpočetní techniky a informatiky pro 2.st. ZŠ)	1	5	2023	Povinné předměty	A	1	LS

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
.	Lifelong learning	Combined	Rozšiřující studium výpočetní techniky a informatiky pro SŠ (pro absolventy Výpočetní techniky a informatiky pro 2.st. ZŠ)	1	4	2023	Povinné předměty	A	1	LS