

## Externship Course Syllabus

**This course contributes to the requirements for the Degree of MSc in Computer Science**

<b>Title of the Academic Program</b>	Master's Degree Programs in English “Digital intelligent control systems”
<b>Type of the course</b>	core /mandatory
<b>Course period</b>	Second semester: from February, the 1st to June, the 1st (18 weeks)
<b>Study credits</b>	9 ECTS credits
<b>Duration</b>	324 hours
<b>Language of instruction</b>	English
<b>Academic requirements</b>	<ul style="list-style-type: none"><li>– BSc degree in Computer Science or equivalent (transcript of records),</li><li>– good command of English (certificate or other official document)</li></ul> <b>Prerequisites:</b> <b>base knowledge of digital electronics, programming skills.</b>

### **Course Description**

“Externship” is a core course.

The Externship is based on the knowledge and competencies acquired in the course of studying the disciplines of the first, second and third semesters of the master's program. These include: "Scientific seminar", "Professional communications ", "Language skills", "Research seminar", "Internet of Things", "Artificial Intelligence Systems", "Research Project Management", “Digital System Design” e.t.c.

The competencies obtained during the Externship are required further in the performance of research work.

The results obtained in the course of Externship are also used in the preparation of the research project and final certification.

### **The aim of the Externship**

The purpose of the externship is to consolidate knowledge and skills of undergraduates obtained in the process of studying disciplines fundamental and professional modules of the curriculum, development skills of practical professional activity.

In the process of passing the Externship, the master student masters new technologies and / or research methods, programs, programming languages, and develops professional and general cultural competencies necessary for inclusion in professional activities. The result of Externship can be an implementation of an algorithm or method, settings research package, architecture of the developed software tool, article describing the result or a chapter of thesis.

## **Special Features of the Course**

Master students do familiarization Externship in the School of Space and Information Technologies as well as in other schools in Siberian Federal University). All Externship topics are related to computer science or computer engineering. Nevertheless, it is recommended to do research on the topic of the thesis. The topic of Externship - the part of scientific research requires approval by the coordinator, who is an employee of the Siberian Federal University (i.e. Assistant, Associate Professor or Full Professor).

An extension can consist of (but not limited to):

- implementation of a research project on the topic of a future thesis;
- preparation of a scientific publication on the topic of the thesis;
- work on other research tasks in agreement with the supervisor.

## **Course Objectives**

The objectives of the course are:

- formation of practical skills and professional competence;
- formation of a professional worldview, ethics and style of behavior of a future specialist, general cultural competencies;
- development of planning and time management skills;
- obtaining skills to perform specific types of work;
- familiarization with the product life cycle or product development;
- compilation of scientific reviews, abstracts and bibliography on the topic of ongoing research.

## **Learning Outcomes of the Course**

With the successful development of Externship, the student must master practical knowledge, skills, and acquire the following competencies:

### **1. To know:**

- the fundamental concepts used in the field of modern problems of science, technology and technology;

- up-to-date information sources allowing to acquire new knowledge and skills in various fields of knowledge.

## **2. To be able to:**

- formulate the goal of searching for information in the field of modern problems of the area of research; search for information in the field of modern problems of science, technology and technology;

- evaluate the quality of information in the field of modern problems of science project;
- build the logic of reasoning and statements; interpret data from different fields of science and technology in the field of research.

## **3. Possess:**

- the skills of collecting and analyzing information in the field of modern problems of in the field of research;

- the skills of obtaining information through modern computer technologies, including in global computer networks;

- data integration skills from different areas of science and technology;

- skills of building evidence-based judgments.

## **Course (module) Structure**

<b>Learning Activities</b>	<b>Hours</b>
Self-study Assignments	324
<b>Total study hours</b>	<b>324</b>

## **Course Outline**

<b>Week</b>	<b>Assignments</b>	<b>Hours</b>
1-8	Getting an assignment for Externship. Acquaintance with the assignment for Externship.	2
	Analysis of the assignment for Externship, Information search. Study of the hardware and software used.	120
9-18	Completion of an assignment related to the passage of Externship	136
	Preparation of the report	60

	Preparation for submission and defense of Externship report	6
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## **Assessment**

Preparation and execution of a report on the results of Externship, the master student should issue a report that should reflect:

- the purpose of the Externship;
- the purpose of research work on the selected topic;
- requirements for research work on the selected topic;
- analysis of their activities during the course of Externship;
- results of research work on the selected topic;
- conclusions based on the results of research work;
- conclusions based on the results of Externship.

The report must be designed according to the General requirements and contain no more than 25 pages (font-14, spacing – 1.5).

Evaluation criteria: the grade "credited" is given to the student if the above points are correctly stated in the research Externship report; otherwise, the grade "not credited" is given.

## **Attendance Policy**

Students are expected to work with their supervisor regularly. Meanwhile, excuses of various origin are permissible, in such case students take a consultation and do the necessary work at home (or at their own).

## **Web page of the course**

Course materials and required reading materials are available on the webpage of the Externship <https://e.sfu-kras.ru/course/view.php?id=32914>, of the SibFU E-learning portal, [www.e.sfu-kras.ru](http://www.e.sfu-kras.ru). You must be logged in to access this course:

## Course Instructor(s) and Tutor(s), contact information



**Oleg V. Nepomnuashchy,**

Ph.D. in Engineering, Professor, Head of Computer Science Dept,  
School of Space and Information Technologies

Siberian Federal University

e-mail: ONepomnuashy@sfu-kras.ru

Google Scholar page:

<https://scholar.google.ru/citations?user=JxdeoasAAAAJ&hl=ru>

Additional information is available at:

<https://structure.sfu-kras.ru/node/2153>

## Core reading

1. Jan Recker. Scientific Research in Information Systems. A Beginner's Guide. Springer International Publishing. 2013., p.164. ISBN 978-3-642-30048-6.
2. David Hitchcock. Patent searching made easy: how to do patent searches on the internet & in the library. Sixth edition. Berkeley, CA: Nolo, April 2013 p.257. ISBNs: 9781413318722, 141331872X, 9781413318739.
3. Yvonne N. Bui. How to Write a Master's Thesis. Third Edition. SAGE publications, Inc. 2020. p.298. ISBN-13: 978-1506336091, ISBN-10: 1506336094.

## Facilities, Equipment and Software

Internet access;

Microsoft Office®.