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CYBPHYS

Co-funded by the Erasmus+ Programme of the European Union

Chernihiv Polytechnic National University

Erasmus+ project 609557-EPP-1-2019-1-LV-EPPKA2-CBHE-JP

“Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems", Acronim “CybPhys”

SMSE status report

MC1 and WS2 on curricula development, acceptance and testing.
January 27-28th 2022, RTU, Riga

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WP2: Arrangements for testing of new developed and modernised courses

New master degree courses in the new master program "Computer engineering and Industrial Automation":
https://stu.cn.ua/wp-content/uploads/2021/04/new-courses20-1.pdf

	credits
• *Model-oriented control in Digital Manufacturing*	*5*
• *Programming of Automation Systems*	*5*
• *Design and Simulation of Power electronics components*	*5*
• *Modelling and Measurement of physical processes in Robotics.*	*5*
• *Simulation of Manufacturing Environment*	*5*
Total	**25**

Updated courses in bachelor program "Electronics of robotic systems and complexes":
https://stu.cn.ua/wp-content/uploads/2021/11/updated-courses_2.pdf

• *Introduction to electronic systems*	*6*
• *Development of electromechanical robotic systems*	*4*
Total	**10**

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WP4: Developing the Sharing Modelling and Simulation Environment platform. Progress.

Project plan.

Activity	Term by plan	Status
Purchase of equipment (hardware and software)	October, 2021	Is done
Installation of the software on the servers of CPNU	November, 2021	Is done
Configuring all software including account creation	December, 2021	Is done
Implementation of the necessary functions	February, 2022	In progress
Development of SMSE interface	March, 2021	In progress
Development of SMSE course examples	May, 2022	
Testing of SMSE	June, 2022	
Development of documentation	July, 2022	
Delivery-acceptance of SMSE	August, 2022	

SMSE proposal: https://stu.cn.ua/wp-content/uploads/2021/11/smse-proposal.pdf
SMSE equipment: https://cs.stu.cn.ua/wp-content/uploads/2021/11/ogoloshennya_2_3.pdf
SMSE acting version: https://eln.stu.cn.ua/login/index.php

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WP4: Developing the Sharing Modelling and Simulation Environment platform. Progress.

Equipment.

Network equipment:	
Router Cisco 3560 Series	1
Server's equipment:	
Server Dual Xeon GOLD series 2U	1
Server Single Xeon Silver series 4U	2
SSD Samsung 860 Pro series 512GB	1
HDD Western Digital 4TB	1
Notebook HP 250 G8	1
APC Smart-UPS SRT 1000VA	1

Purchase of equipment is finished.
We have perform the migration of CybPhys Documents to new Moodle server and replicated all accounts of partners.

Link to Moodle:
http://eln.stu.cn.ua

List of accounts:
CybPhysUser.xlsx

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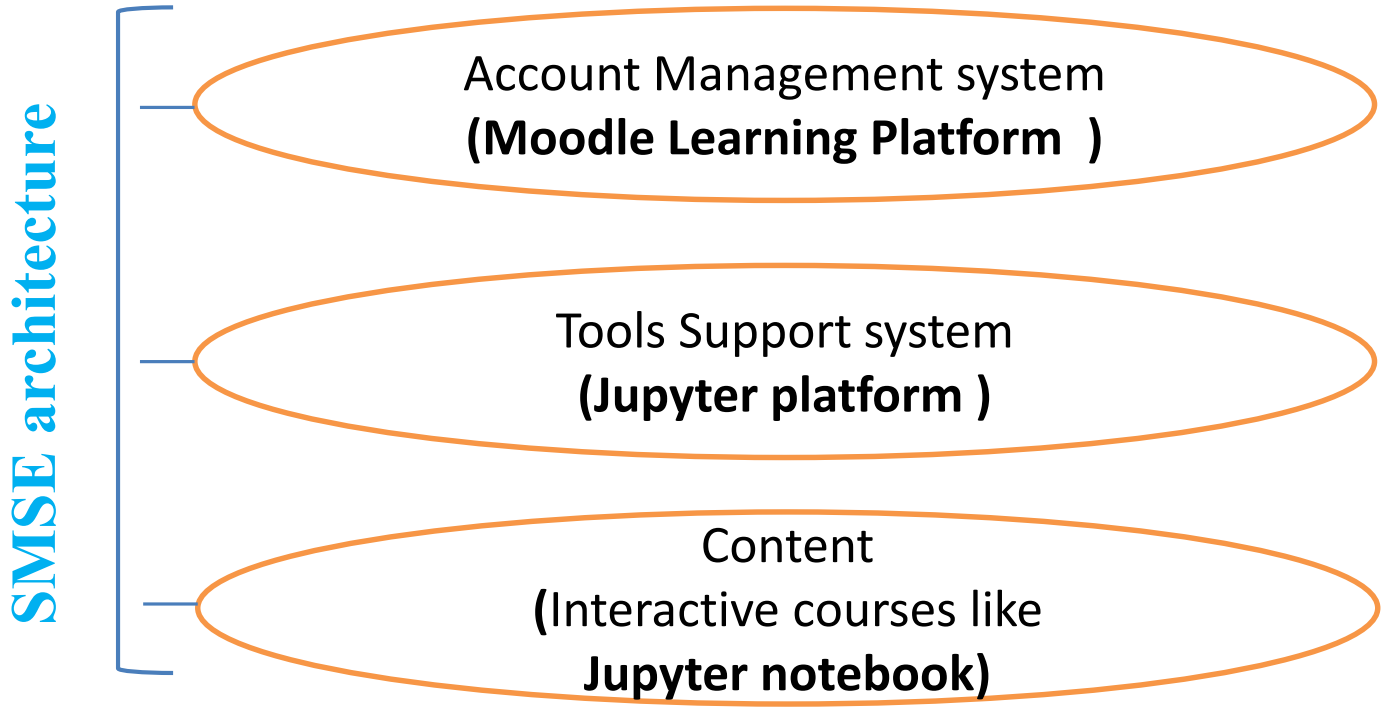
SMSE architecture

Main idea and task – embedding Jupyter platform to Moodle



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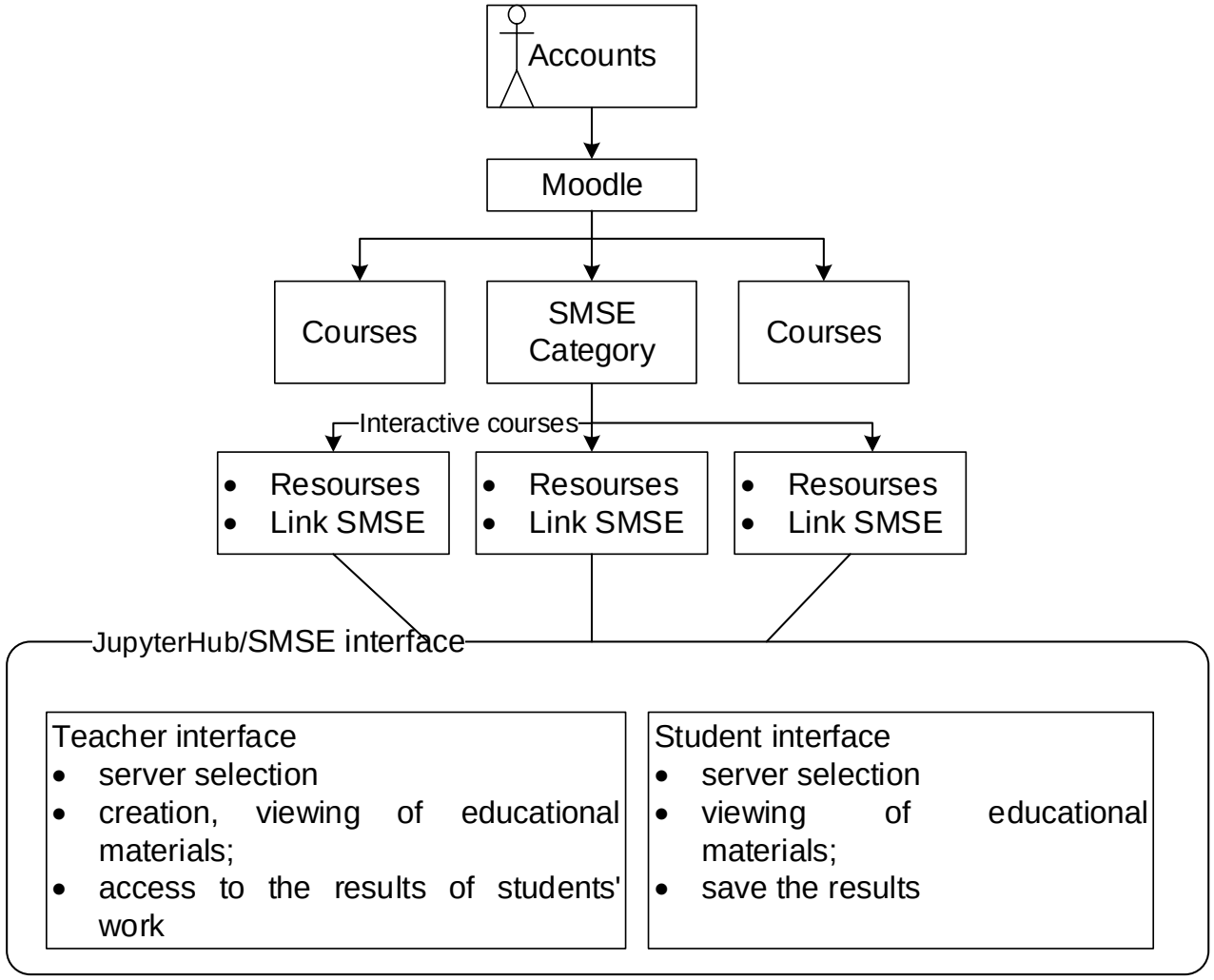
SMSE use case diagram



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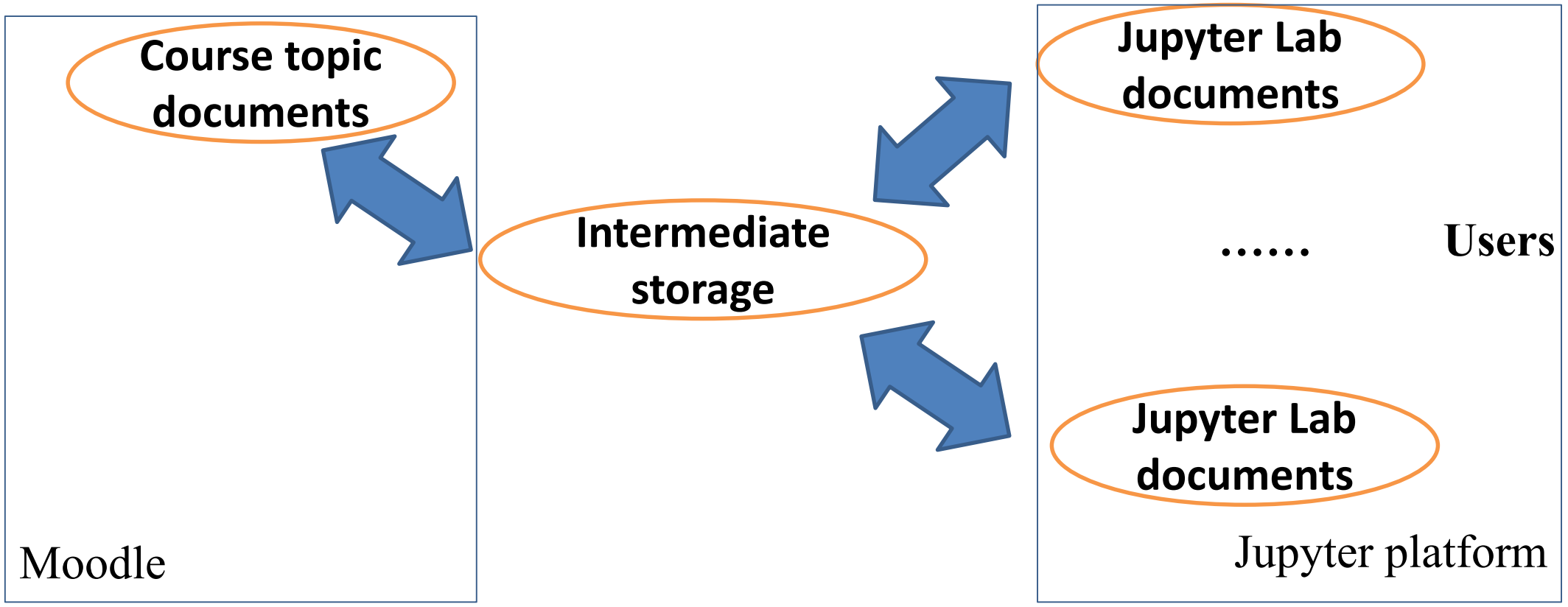
SMSE data flow diagram



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SMSE teacher's functions support

- Creation Jupyter Lab server fro m a template
- Creation and uplrode kernels to Jupyter Lab server
- Creation and upload Jupyter documents to Jupyter Lab
- Testing and estimation of student work using nbgrade tools

SMSE students's functions support

- Access to course documents from Jupyter Lab
- Creation testing report for course tasks and upload them to Jupyter
- Creation additional education documents in own Jupyter Lab image

SMSE integration functions support

- Upload/download course documents between Moodle and Jupyter platform
- Represent of student work estimation in Moodle journal

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