

# Experience of Advanced Chemistry Teaching at AESC MSU in the pandemic situation: challenges, losses and gains

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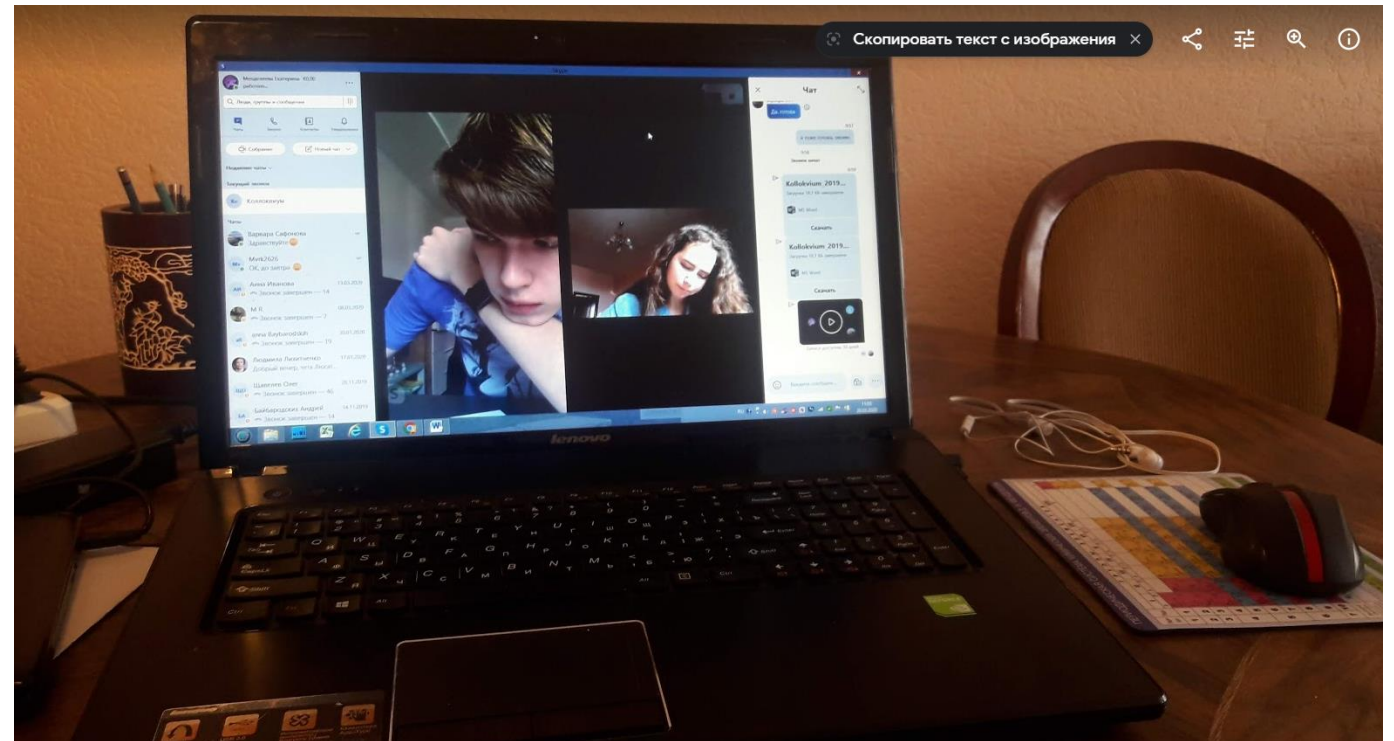


# Periods of e-teaching at AESC MSU



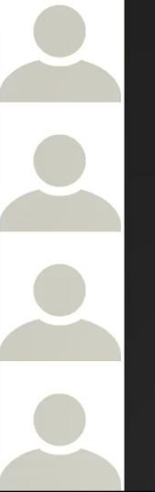
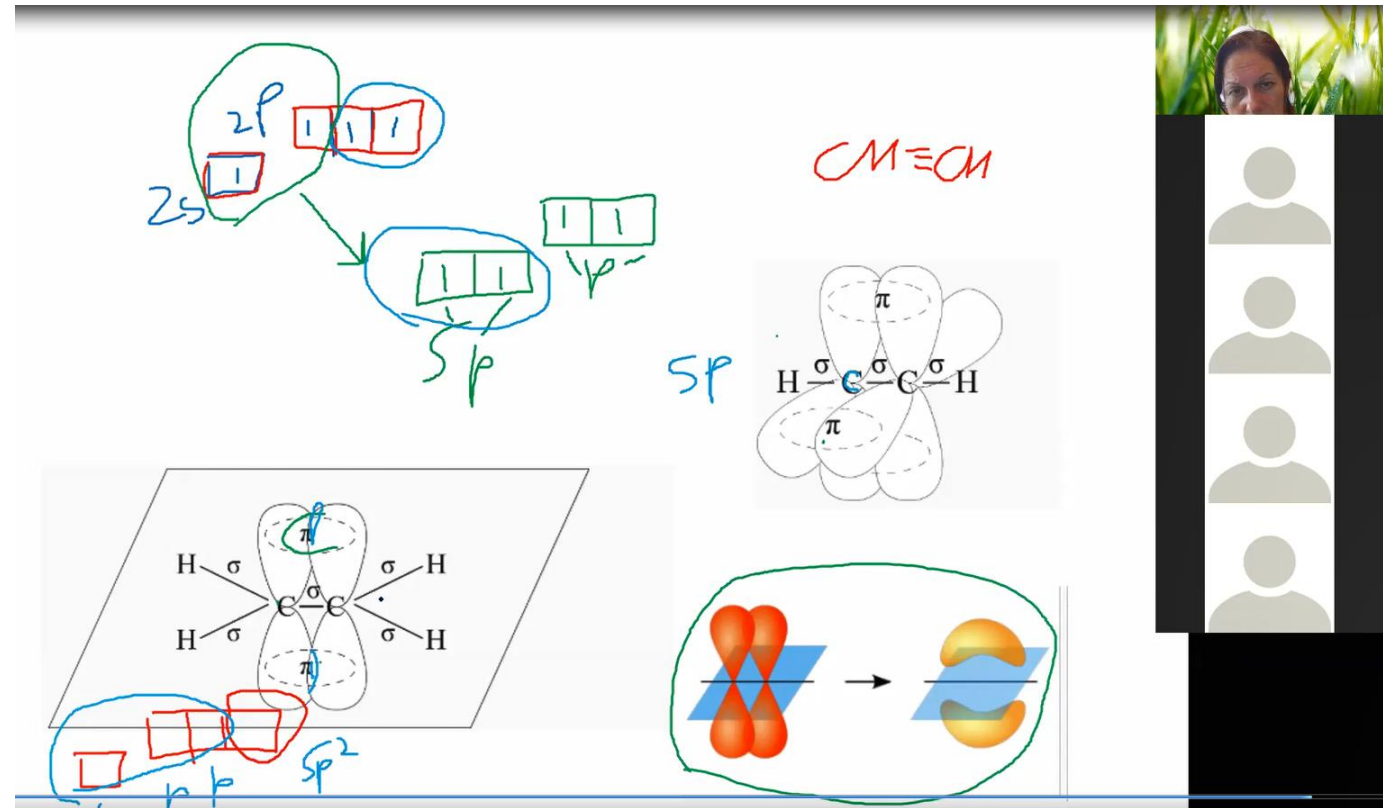
- April - May 2020
- October 2020 - February 2021
- April - May 2021

• 10 months



# On-line educational system

- Lectures
- Workshops
- Chemical experiments
- Mid-terms
- Final tests
  
- **Lack of communication**



# Challenge:

**two-way interaction between teacher and students:**

- activities during the lessons
- communication between lessons

The screenshot displays a video lecture with a whiteboard background. The main content is a chemical reaction for the oxidation of 2-pentanone:

$$\text{CH}_3\text{CH}_2\text{C}(=\text{O})\text{CH}_2\text{CH}_3 + \text{KMnO}_4 + \text{H}_2\text{SO}_4 \xrightarrow{\text{t}} \text{C}_2\text{H}_5\text{COOH} + \text{CH}_3\text{COOH} + \text{MnSO}_4 + \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$$

Below the reaction, there are two hand-drawn skeletal structures. The first is a cyclopentane ring with two hydroxyl (-OH) groups attached to adjacent carbons, representing cyclopentane-1,2-diol. An arrow points to the second structure, which is a cyclohexane ring with a ketone group (=O) and a hydroxyl group (-OH) attached to adjacent carbons, representing cyclohexane-1,2-diol.

On the right side of the screen, there is a vertical video call interface. It shows a small video feed of a person at the top, followed by a 'Reconnecting...' status indicator, and two placeholder icons for other participants.

At the bottom of the screen, there is a video player control bar with a timestamp of 09:35 and various playback controls.

# Activities during and after the lessons

E-teaching tools - group blackboard

chats

educational systems

(Moodle, Kahoot, Решу ЕГЭ ...)

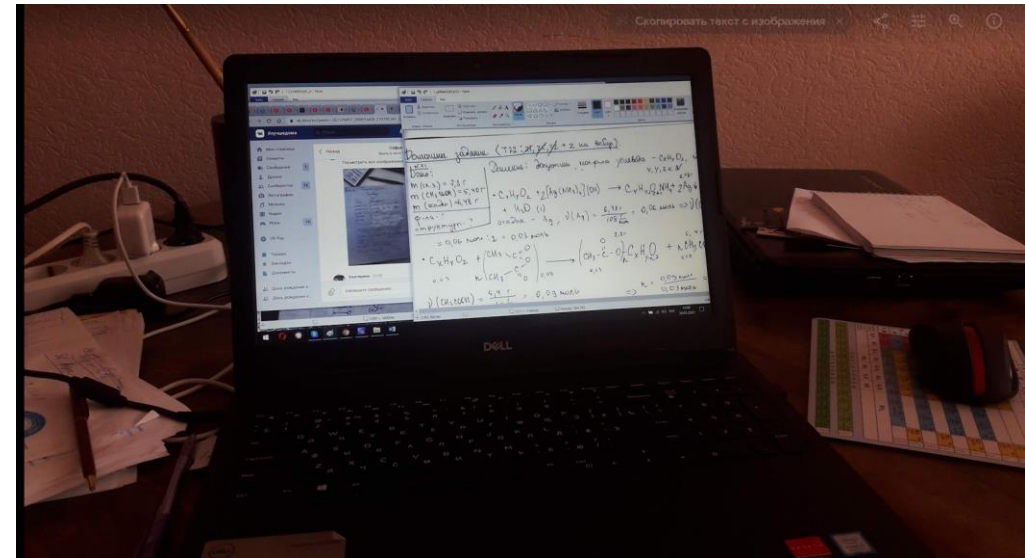
social networks

-Discussions and problems solving

-Questions to students

**-Possibility to ask teacher using individual chat both during and after the lesson.**

**-Video records of lectures**





# Remote experimental work

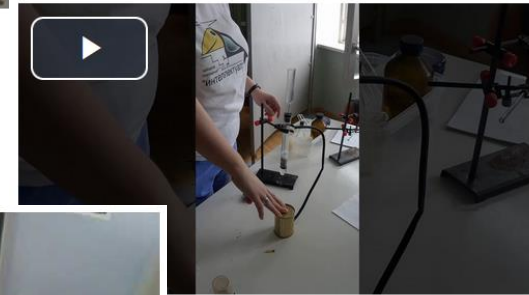
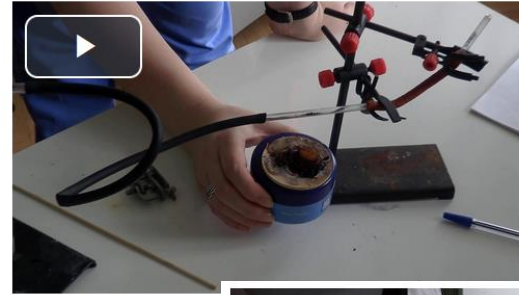
- Experiments made at home
- Video experiments
- Discussions and tests



# Video experiments



<https://youtu.be/miburA7a6t4>



# Feedback

- Describe processes shown on pictures:



1



2



3



4



5



6



7



8



9



10



11



# Lessons of lockdown

- What are we going to use in «postpandemic» teaching:
- Zoom translating and recording lectures for students which are not in the class for some reasons;
- Private chats for shy students
- Video recordings of lectures
- Video recordings of some dangerous experiments
- Electronic survey system to test students and to receive feedbacks.

- Thank you for your attention!

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