

Out of Chaos Comes Promise: How CourseFlow can support online learning and teaching

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2 novembre 2020



S4 Systems
Supporting
Student
Success



subventionné par
L'Entente Canada-Québec

Emergency remote teaching (ERT): instructor experience!

Coronavirus

Lockdown!!!

COVID-19

COVID-19

Schools
closed

COVID-19

Coronavirus

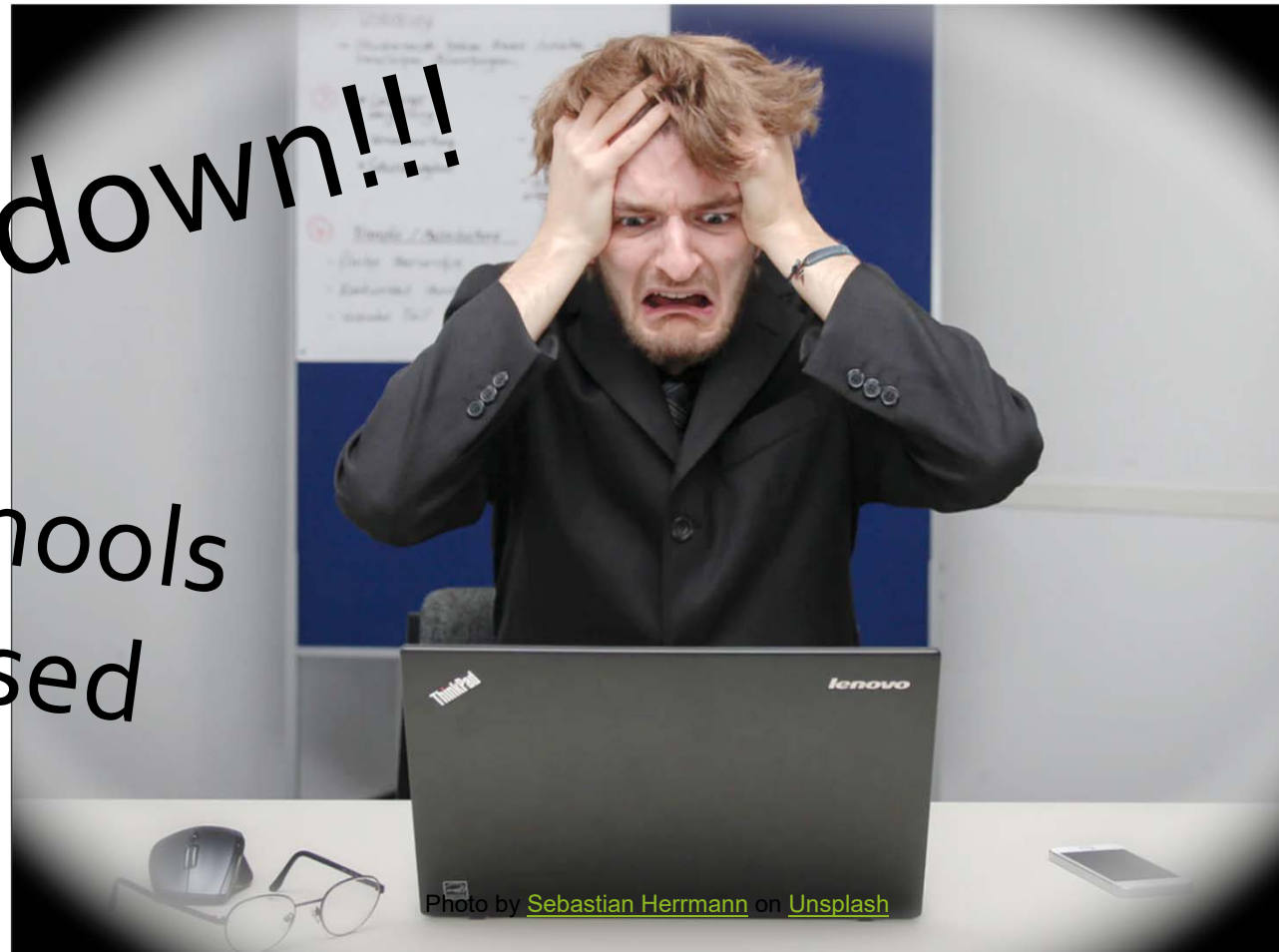


Photo by [Sebastian Herrmann](#) on [Unsplash](#)

Emergency remote learning (ERL): student experience!



Photo by [JESHOOOTS.COM](https://www.jeshoots.com) on [Unsplash](https://unsplash.com)

Where do we find solutions?



Presentation overview

1. CourseFlow design history:
 - visualizing instructional workflows
2. CourseFlow features:
 - levels & concerns
3. Use case solutions:
 - online instruction & learning
4. Summary

Co-Designing: Research Practice Partnership (RPP)



CourseFlow: making instructional flow visible



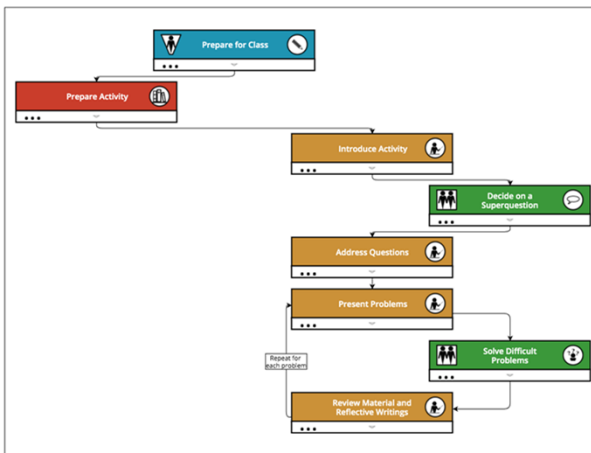
RESOURCES

Reflective Writing on Waves

By Chris Whittaker

Description:

In this single-class activity, students engage in a reflective writing exercise on waves that offers feedback for the instructor on which topics to be covered in the following group activity. Students will be able to review material that addresses misconceptions or



STRATEGIES AND APPROACHES

Evidence-based sequenced tasks that enhance mechanisms that promote learning

ACTIVE LEARNING ACTIVITIES

Detailed examples of AL instruction, work

ARTICLES AND BOOKS

Curated database of articles and books of researchers

ONLINE TEACHING & LEARNING RESOURCES

Resources to help members of our educational learning.

Tasks in Workflow

SOCIAL PLANE(S)
Individual
Group
TYPE OF TASKS
Discussing
Solving problems
Writing

Technical Details

CLASS SIZE
Small (20-49)
Medium (50-99)
TIME
Single class period (< 90 mins)

READ MORE +

Instructional Objectives

Students will familiarize themselves with introductory topics related to waves.

Workflow & Materials

ACTIVITY WORKFLOW

Reflective Writing On Waves

DOWNLOAD

REFLECTIVE WRITING ON WAVES COURSEFLOW

Link to CourseFlow Tool

LINK

Contributor's Notes



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BENEFITS

The general strategy used here has the benefit of being content independent – though the example used is for waves, this works equally well for any topic.

Reflective writings force the students to read the textbook and solidifies their understanding as they try to identify topics they do not understand. The students come to class with better prior knowledge and deeper prior questions.

Basing the lectures on the reflective writings saves time, as you only cover the topics the students are struggling with. It also allows you to be more targeted in terms of what activities you do.

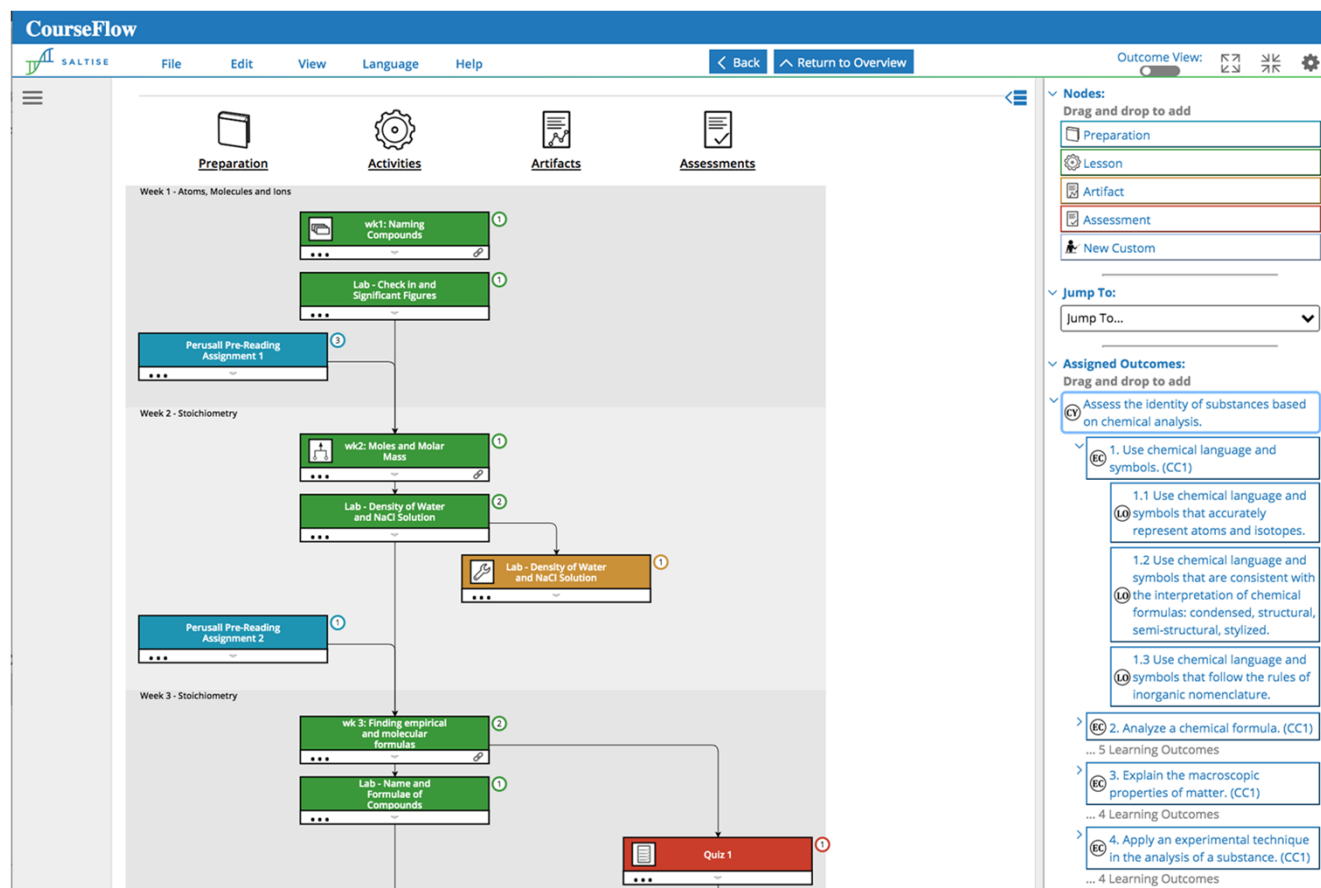
In an active learning classroom, you have to get students taking risks. That means it must be a safe place to reveal ignorance. This rewards that – don't take marks off because students don't understand a topic. This activity also helps students realize either that they are not the only ones having trouble with a topic or, if they did understand it, they realize that they can help others.

CHALLENGES

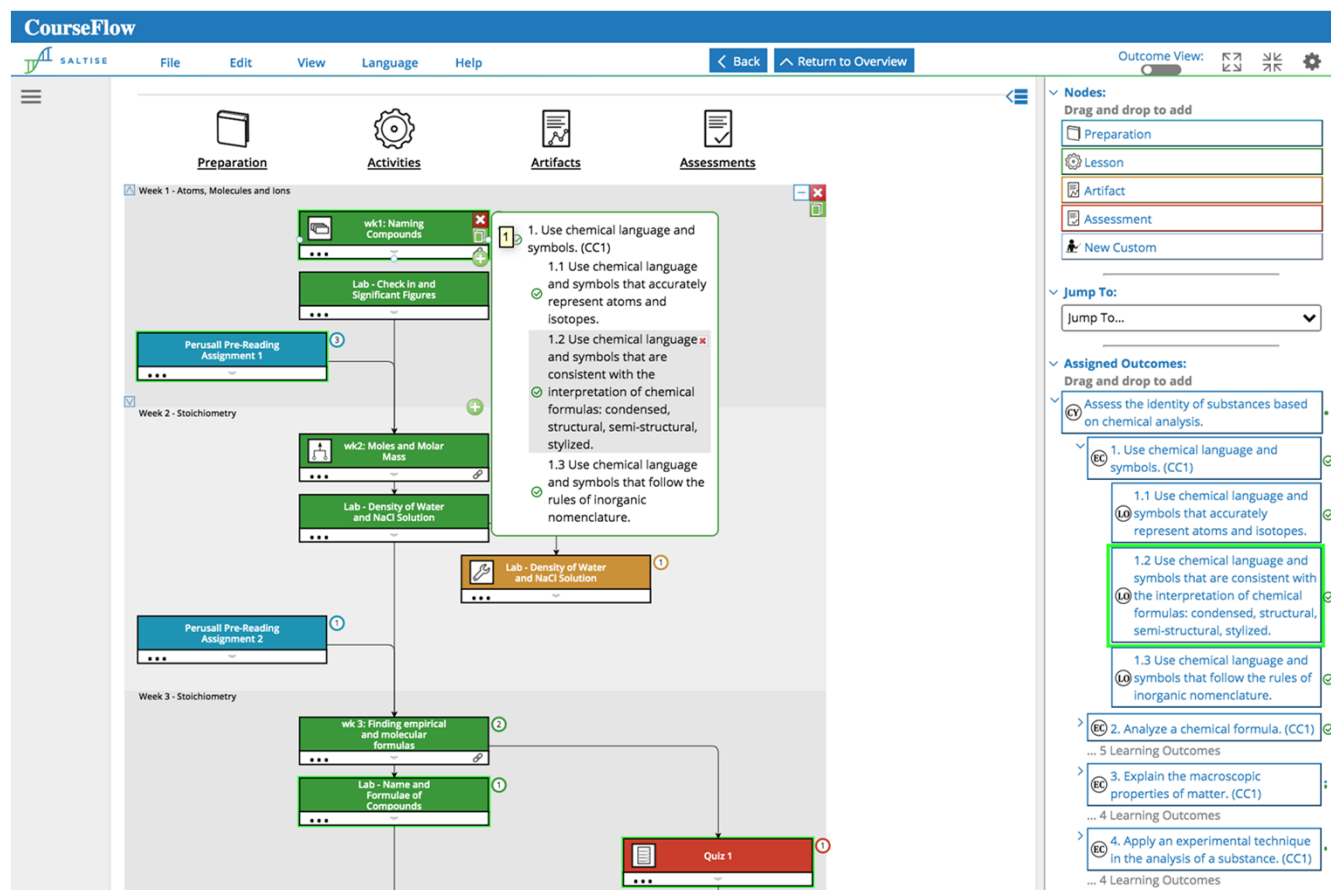
The greatest challenge is maintaining the benefits throughout the whole semester and making sure they are writing these for themselves, not just for you. As soon as they are writing what they think you want to see, the benefit is severely diminished.

TIPS

Course level: mapping out weeks, lessons, etc.



Course level: accounting for learning



Course level: making materials available & visible

CourseFlow

 SALTISE

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Return to Overview

Preparation

Activities

Artifacts

Assess

Week 5 - Types of Chemical Reactions

wk5: If you're not part of the solution, you're part of the precipitate

<https://www.saltise.ca/activity/chemistry-if-youre-not-part-of-the-solution-youre-part-of-the-precipitate/>

myDALITE Post-Topic Assignment 1 (stoichiometry)

1. ChemGENStoich - Q16
<https://mydalite.org/en/assignment/ChemGENStoich-Q16>
2. ChemGENStoich - Q24
<https://mydalite.org/en/assignment/ChemGENStoich-Q24>
3. ChemGENStoich - Q25
<https://mydalite.org/en/assignment/ChemGENStoich-Q25>

Perusal Pre-Reading Assignment 5

Week 6 - Types of Chemical Reactions

wk6: Oxidation States Game

wk6: Balancing Redox Reactions

At a Glance

DISCIPLINE
Chemistry

INSTRUCTIONAL LEVEL
College & CEGEP
University

COURSE
General Chemistry

Tasks in Workflow

SOCIAL PLAN(S)
Group

TYPE OF TASKS
Solving problems
Reviewing & assessing peers

Technical Details

USEFUL TECHNOLOGIES
Interactive whiteboards
Whiteboards

TIME
Single class period (~90 mins)

PURPOSE
Application & practice

Overview

The aim of this activity is to present the concepts of solubility and the skills for writing proper chemical equations in an engaging and memorable way.

The students form groups of two and obtain a card with a compound written on it from the teacher. Each group is then tasked to find another group whose compound will form a precipitate with theirs. Together the group of 4 students write out the chemical equation in various ways (molecular/formula, complete ionic and net ionic equation). Upon completion, students review another group's work.

Instructional Objectives

- To better understand solubility and precipitation;
- To know how to write chemical equations.

Workflow & Materials

ACTIVITY WORKFLOW

If You're Not Part of the Solution You're Part of the Precipitate

DOWNLOAD

GROUP ACTIVITY

Student Instructions

myDALITE

Question

Back to assignment | Reset answers

ChemGENStoich - Q24

Identify the percent yield when 28.36 g of CO₂ are formed from the reaction of 456.93 g of C₆H₁₈ with 256.0 g of O₂.

$$2\text{C}_6\text{H}_{18} + 25\text{O}_2 \rightarrow 16\text{CO}_2 + 18\text{H}_2\text{O}$$

A. 20.00%

B. 25.00%

C. 50.00%

D. 12.50%

You answered **B** and gave this rationale:

whatever I don't understand this question.

You then changed your answer to **D** and selected this rationale:

We are given the actual yield of CO₂. To find the percent yield of it, we must first figure out its theoretical yield through stoichiometry. Since we know the mass of both reactants, we use the limiting one. 456.93g of C₆H₁₈ is equal to 3.9990 mol of C₆H₁₈ (456.93g/(114.26g/mol)) and would produce 31.992mol of CO₂ (3.9990mol x 16mol/2mol). 256.0g of O₂ is equal to 8.000mol of O₂ (256.0g/(32.00g/mol)) and would produce 5.120mol of CO₂ (8.000mol x 16/5). O₂ is the limiting reagent. 5.120mol of CO₂ would be theoretically produced, which corresponds to 225.3g of CO₂ (5.120mol x 44.01g/mol). The percent yield of CO₂ is thus equal to 28.36g/225.3g x 100% = 12.50%.

Course level: auditing course content & outcomes

SALTISE

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Outcome View:

	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Grand Total	
	+Add Node Class 12: Combination Circuits Lab 6: Kirchhoff's Law Class 13: Internal Resistance and Parallel Capacitors Class 14: Capacitors & Capacitor Lab Activities Class 15: Series vs Parallel Capacitors Total	+Add Node Class 16: Series vs Parallel Capacitors Class 17: Capacitors & Capacitor Lab Activities Class 18: Series vs Parallel Capacitors Total	+Add Node Total	+Add Node Class 19: Magnetic Fields Class 20: Magnetic Force on Charge Class 21: Magnetic Force on Wires Total	+Add Node Class 22: Bio-Savart Law Lab Project Continued Class 23: Magnetic Force on Wires Total	+Add Node Class 24: Practice Problems and Fields Lab Project Continued Class 25: Coils and Solenoids Total	+Add Node Class 26: Practice Problems and Fields Lab Project Continued Class 27: Coils and Solenoids Total	+Add Node Class 28: Qualitative Induction Total	Total
P To analyse various situations and phenomena in physics using the									
C 1. To analyse situations in physics associated with static electrical charge.									
C 2. To analyse situations in physics associated with electric current.									
A 1. Use of concepts to describe electric current and motion of electric charges.									
A 2. Application of Ohm's Law in direct current circuits.									
A 3. Use of the concept of energy in electric circuits, EMFs and batteries.									
A 4. Analysis of series and parallel circuits.									
A 5. Applications of circuits to explain everyday phenomena.									
C 3. To analyse situations in physics associated with magnetism and magnetic									
A 1. Use of concepts associated with magnetism and magnetic induction.									
A 2. Use of vectors and algebraic equations to solve problems involving electric									
A 3. Application of specific laws of magnetism and magnetic induction.									
C 4. To apply the laws of electricity and magnetism.									
A 1. Application of the laws of electricity and magnetism.									
A 2. Application of the laws of magnetic induction.									
C 5. To verify experimentally a number of laws of electricity and magnetism.									
A 1. Meticulous experimentation									
A 2. Appropriate use of measuring instruments									
A 3. Critical analysis of results and justification of the steps in the analysis of									
A 4. Laboratory report in line with									

Nodes:

Preparation

Lesson

Artifact

Assessment

New Custom

Assigned Outcomes:

Select set to add

Assign Outcome

Display:

Preparation

Activities

Assessments

Artifacts

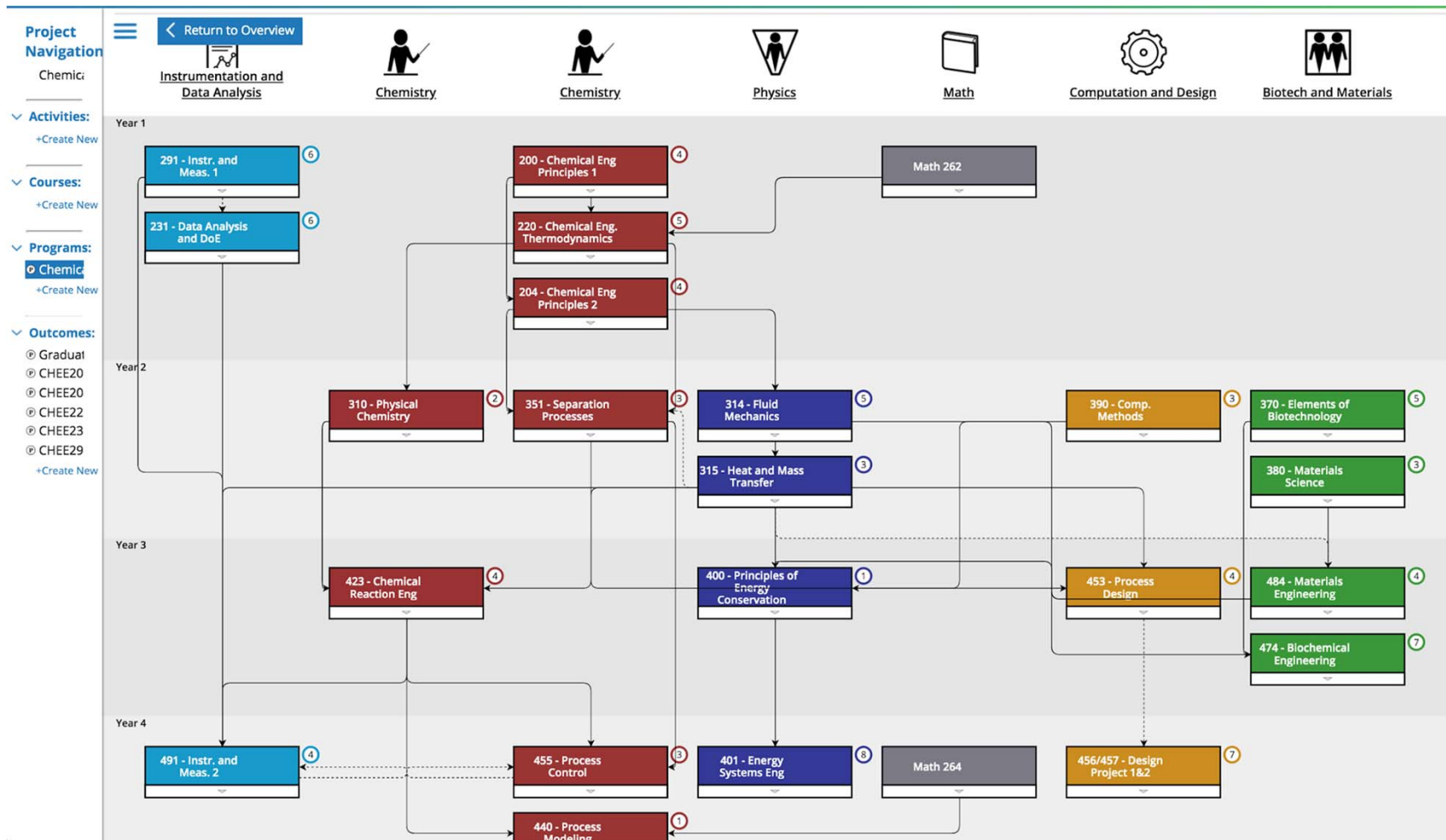
Sort By:

Week

Context

Column

Program level: seeing the connections between courses



Program level: auditing the learning outcomes

CourseFlow



File

Edit

View

Language

Help

Insert a description here

[Return to Overview](#)

Project Navigation

Chemical

Activities

+Create New

✓ **Courses:**

+Create New

Programs

P Chemico

+Create New

✓ Outcomes

© Gradua

© CHEFF20

© CHEFF20

© CHEF22

© CHEFF23

® CHEF29

+Create New

(P) Graduate Attributes and Indicators

> (C) 1. KB - Knowledge Base for Engineering

> (C) 2. PA - Problem Analysis

3. IN - Investigation

4. DE - Design

> (C) 5. ET - Use of engineering tools

> (C) 6. IT - Individual and team work

> (C) 7. CS - Communication Skill

> (C) 8. PR - Professionalism

9. IE - Impact of engineering on society and the environment

> (C) 10. EE - Ethics and equity

11. EP - Economics and project management

> (C) 12. LL - Life-long learning

(P) CHEE200

(P) CHEE204

© CHEE220

P CHFF231

P CHEF291

Using CourseFlow: from ERT to online instruction

keeping track of **course content** for **instructor** and **student**

The screenshot shows the CourseFlow web application interface. The browser address bar displays `jchoquette.github.io/CourseFlow/courseplanner.html`. The interface includes a top navigation bar with 'File', 'Edit', 'View', 'Language', and 'Help' menus, and buttons for '< Back' and 'Return to Overview'. Below this is a horizontal tab bar with 'Preparation', 'Lessons', 'Labs', and 'Assessments'. The main workspace shows a flowchart for 'Lab 6 Paper Chromatography Exp'. The lab box lists tasks: reading the experimental document, joining a Zoom session, carrying out the experiment at home, and acquiring materials before the lab session. Arrows lead from the lab box to a 'Reminder' box (stating the lab report is due this week) and then to a 'Lab 6 Lab Report' box (stating the report is a smiley face, to be submitted online in Moodle, and due Friday, Nov 13 at midnight). On the right, a 'Nodes' sidebar lists 'Preparation', 'Lesson', 'Artifact', 'Assessment', 'Labs', and 'New Custom'. Below this are sections for 'Jump To:' and 'Assigned Outcomes:'.

CourseFlow

SALTISE

File Edit View Language Help

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Outcome View:

Preparation Lessons Labs Assessments

Lab 6 Paper Chromatography Exp

- Read the experimental document
- Join me through Zoom for an introduction to the chromatography technique
- Carry out the experiment at home
- Please acquire the materials you'll need before the lab session. Refer to the lab document for the list of materials.

Reminder

Lab Report for the Synthesis and Recrystallization of Acetanilide is due this week (see week 5)

Lab 6 Lab Report

- Paper Chromatography is a smiley face lab report
- To be submitted online in Moodle.
- Due Fri, Nov 13 at midnight for everyone

Nodes:

Drag and drop to add

- Preparation
- Lesson
- Artifact
- Assessment
- Labs
- New Custom

Jump To:

Jump To...

Assigned Outcomes:

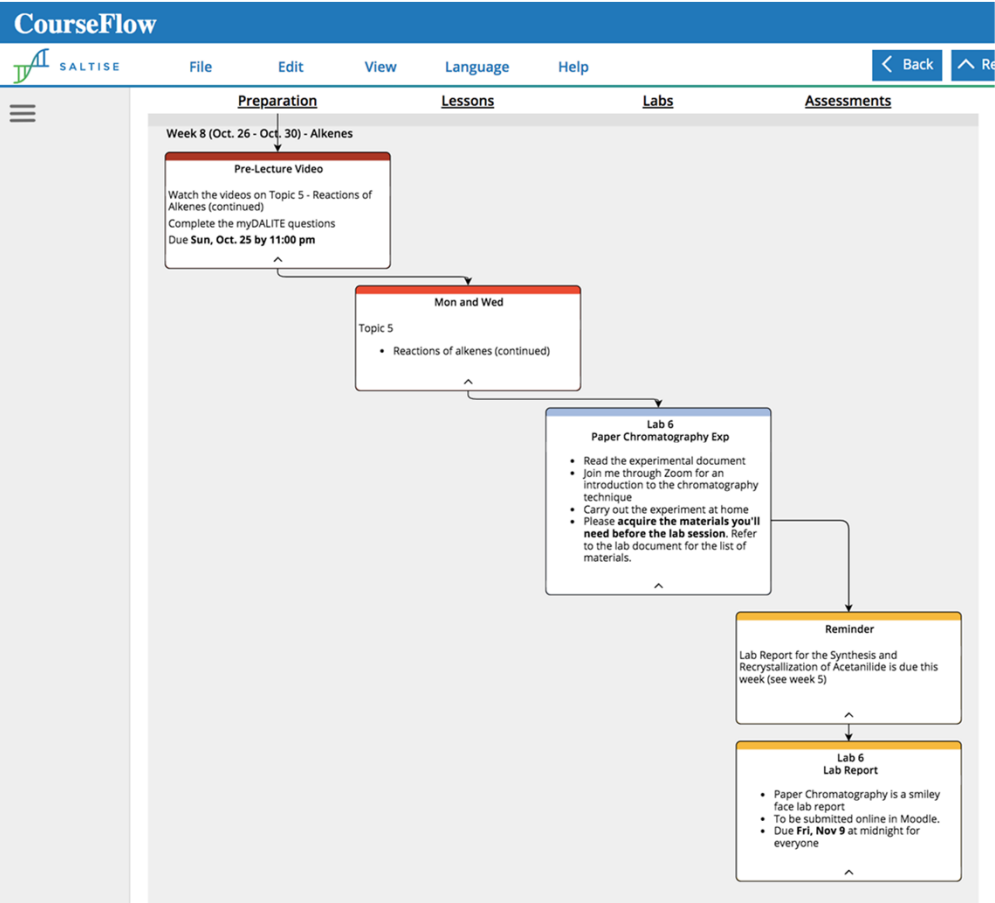
Drag and drop to add

No outcomes have been added yet! Use the buttons below to add one.

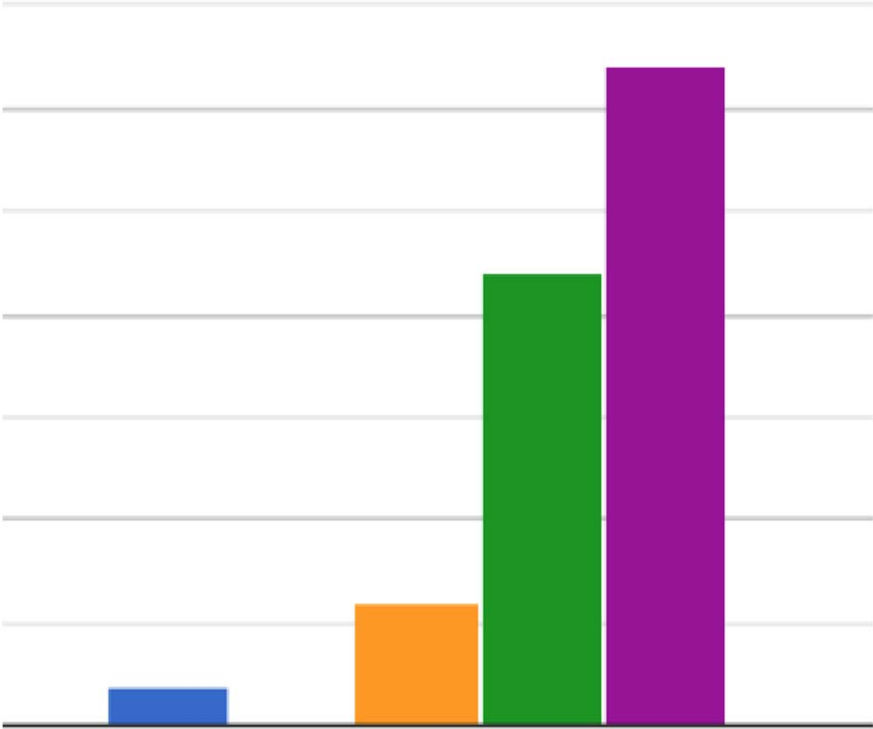
Select set to add

Assign Outcome

Using CourseFlow: students' feedback !



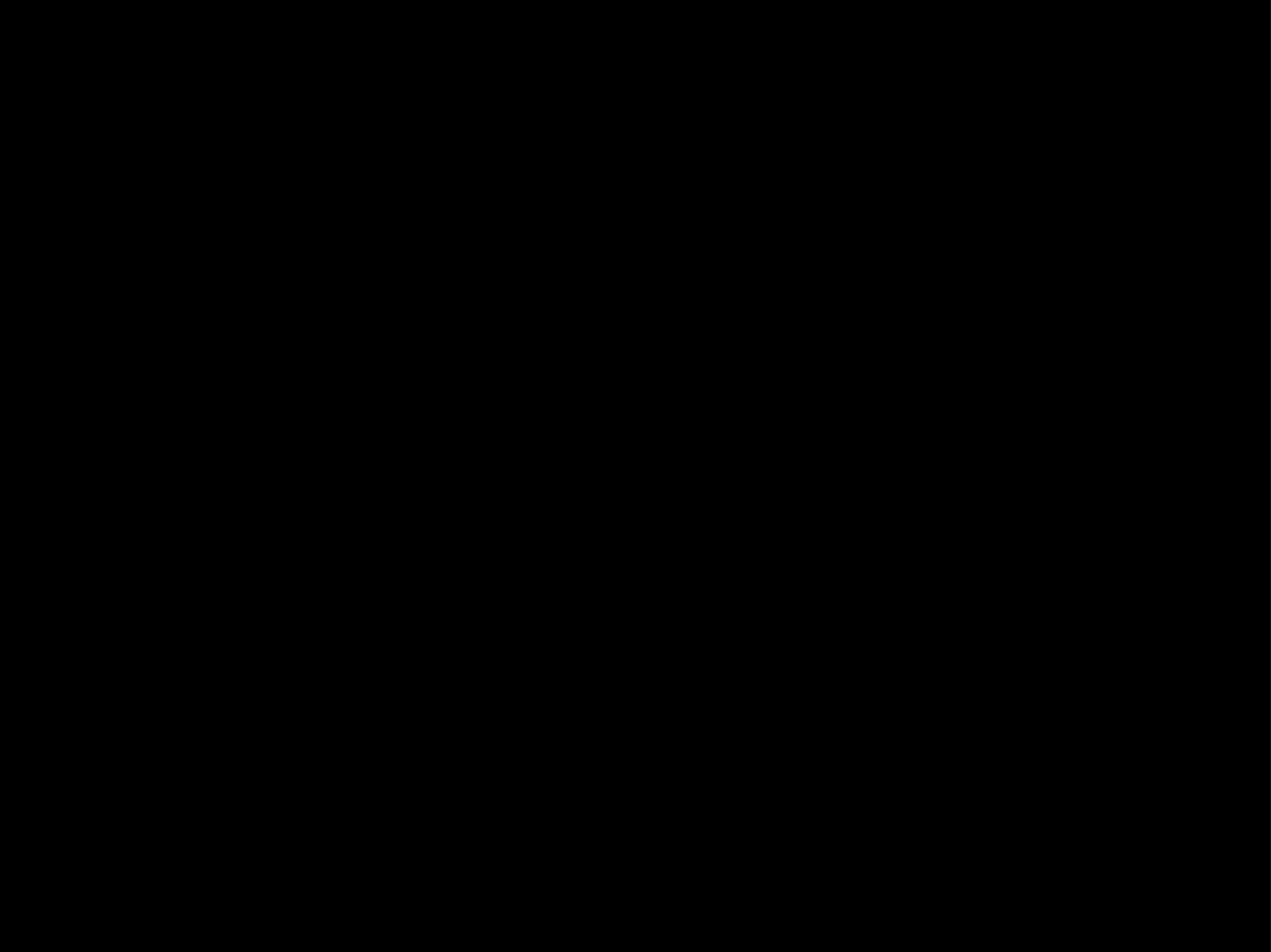
Does CourseFlow help with my learning in this online course



Course schedule (flowchart)

1-strongly disagree 2-disagree 3-neutral 4-agree 5-strongly agree

Using CourseFlow: from ERT to designing assessments



designing &
keeping track of
**sophisticated
assessments**

CourseFlow: summary

A dynamic tool that: Helps keep track of ...

- the weeks (time) & work to be done (curriculum)
- the learning outcomes/objectives (competencies, etc.)
- the assignments & assessments (alignment, due dates, etc.)
- the course resources & materials (handouts, readings, etc.)

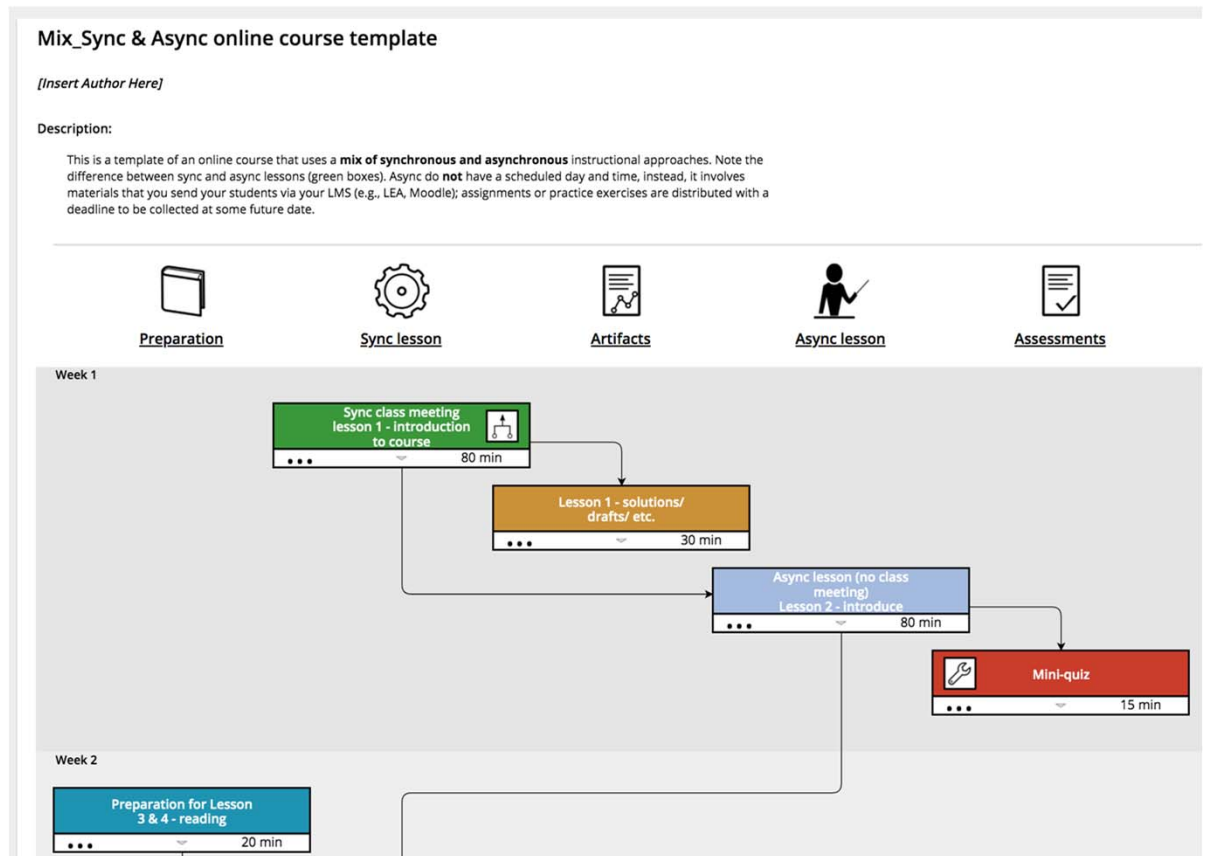
CourseFlow: summary

A dynamic tool that: Facilitates planning & collaboration because of ...

- the dynamic nodes and components of the workflows
- the “cut and paste” features of the node content boxes
- the ability to embed link to pre-existing web-based content through hyperlinks
- the ability to be embedded in learning management systems (LMS) – e.g. Moodle

CourseFlow: online course template

live template
for an
online course



Merci! Thank you!

For more information and tutorials check out the SALTISE website
<https://www.saltise.ca/innovations/courseflow/>