QUALITY IN EDUCATION ACHIEVED WITH MULTIMEDIA ASSETS

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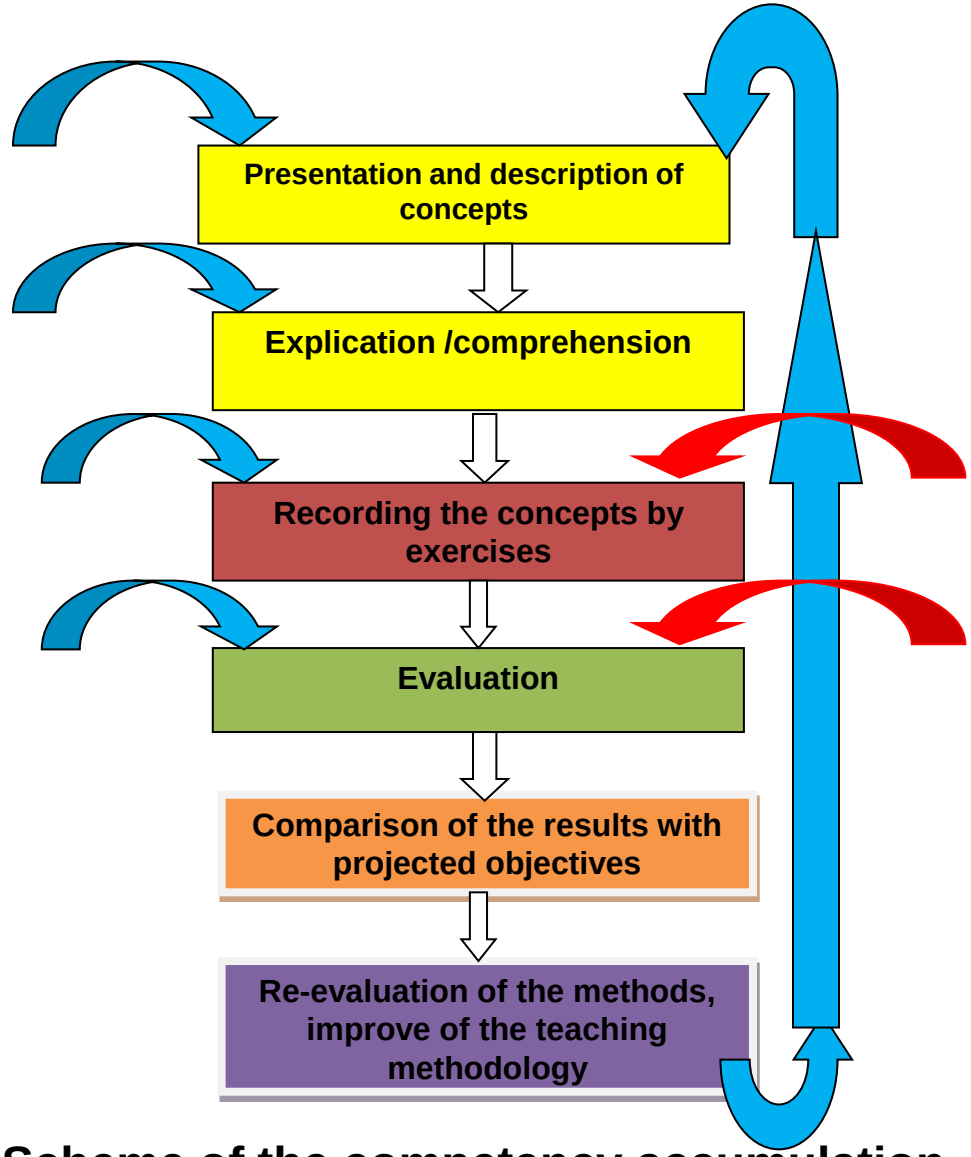
Challenges of contemporary higher education

- the rapid evolution of science and technology creates an incomprehensible amount of scientific product,
- easy access to information, both of higher and quite often of dubious quality,
- the consequence of the mass character of higher education is that many students enrolled in the educational process do not posess adequate knowledge and skills,
- classical higher education methods – such as academic courses, seminars - don't meet the expectations of the new generation, grown up on computers,

FAQs in University

- ✓***How can the students with a lower level of knowledge be encouraged to learn continuously during the academic year?***
- ✓***How shall be organised the practical training of students to make them able to solve the required tasks in their future career?***
- ✓ ***How did the tools of information technology become supports of knowledge acquisition? Where and how shall they be used?***
- ✓***What role should various evaluation methods play in the process of competency obteintion?***

Teacher's contribution



The individual activity of the student

Scheme of the competency accumulation

Educational tools for teaching, understanding and skill acquirement

- illustrative material and didactic assets,

- radio (the first instrument towards which many scientists had great hopes),
- motion **picture** (many specialists imagined future institutions as giant cinemas) and **videofilm**,
- nowadays, in the era of information technology and internet another device – **the computer** – is regarded with big hope.

Educational tools in technical teaching:

- practical training by assuring proper conditions suiting the expectations of a future workplace,
- pilot and industrial scale plants,
- production units where education, research and production complete each other to serve the development of professional skills.

Why is the multimedia important in knowledge and skills acquiring ?

Different experiments show that students remember approximately:

- **20%** of the information received verbally,
- about **30%** of the information received visually,
- and more or less **50%** of their synchronized combination,
- they remember **80%** of the information if they hear and see it, and carry out an activity related to it.

Where can we use the multimedia tools in knowledge and skill accumulation?

- **Presentation**: providing information, verbal and written expression, combination of images and texts, preparation and analysis of figures and charts, etc.,
- **Active knowledge acquisition and application**: construction of knowledge in a customisable, interactive, computer-assisted learning environment,
- **Simulation**, **virtual labs**: real educational devices combined with computer–assisted experimentation, measurement, process modelling, etc.,
- **Project preparation**: individual or (large or small) group activity,
- **Online examination**: customised exercises, practising options, immediate, diagnostic evaluation.

With a virtual word to a real competency

Objective:

Changing classical written learning tools, especially course notes, practical guides and calculus with a more interesting and spectaculous multimedia assets.

This new type of tool should not only support understanding and explanation, but it should guide the individual work as well.

What shall the new type of multimedia tool look like?

•A higher level may be achieved by built-in pictures, figures and digital moving pictures,

• New educational multimedia documents should be as *linear* as possible and hyperlinks shall enhance understanding. With such a structure students will be able to follow the lecturer and understand more easily the logic of the discussed matter,

• Computers represent the living space of multimedia, but the optimal solution would be the combination of electronic media with printed books, in a synchronised form.

How can university management persuade lecturers to create and use the multimedia tools?

✓ Recognized by the academic community that these methods meet not only the expectations of students, but also help knowledge, understanding and skills acquisition.

✓ The **annual assessment of lecturers** should shift the emphasis from the elaboration of a written course to the **employment of multimedia tools**.

✓ Create a proper infrastructure for the use of multimedia tools.

Let see a short examples

The product quality and economic efficiency of pălinca manufacturing depends on how much understood the students the principle of

MULTISTAGE DISTILLATION

before applied it!

VaxaSoftware - Number of Theoretical Plates by McCabe-Thiele Method

File Options Help

Most volatile component: ethanol

Less volatile component: water

Vapor-liquid equilibrium: ○ Relative volatility ◉ VLE Table

Vapor-liquid equilibrium

Edit VLE table...

Thermal state: Parameter q: 1

Saturated liquid at its bubble point

Reflux ratio

R = L/D = 11.87

Mole fraction in distillate

Xd = 0.8

Mole fraction in feed

Zf = 0.400

Minimum reflux ratio

Rmin = 0.86963

Overall plate efficiency

E = 1

Number of the feed plate (from top)

NF = 4.87

Number of theoretical plates (with reboiler)

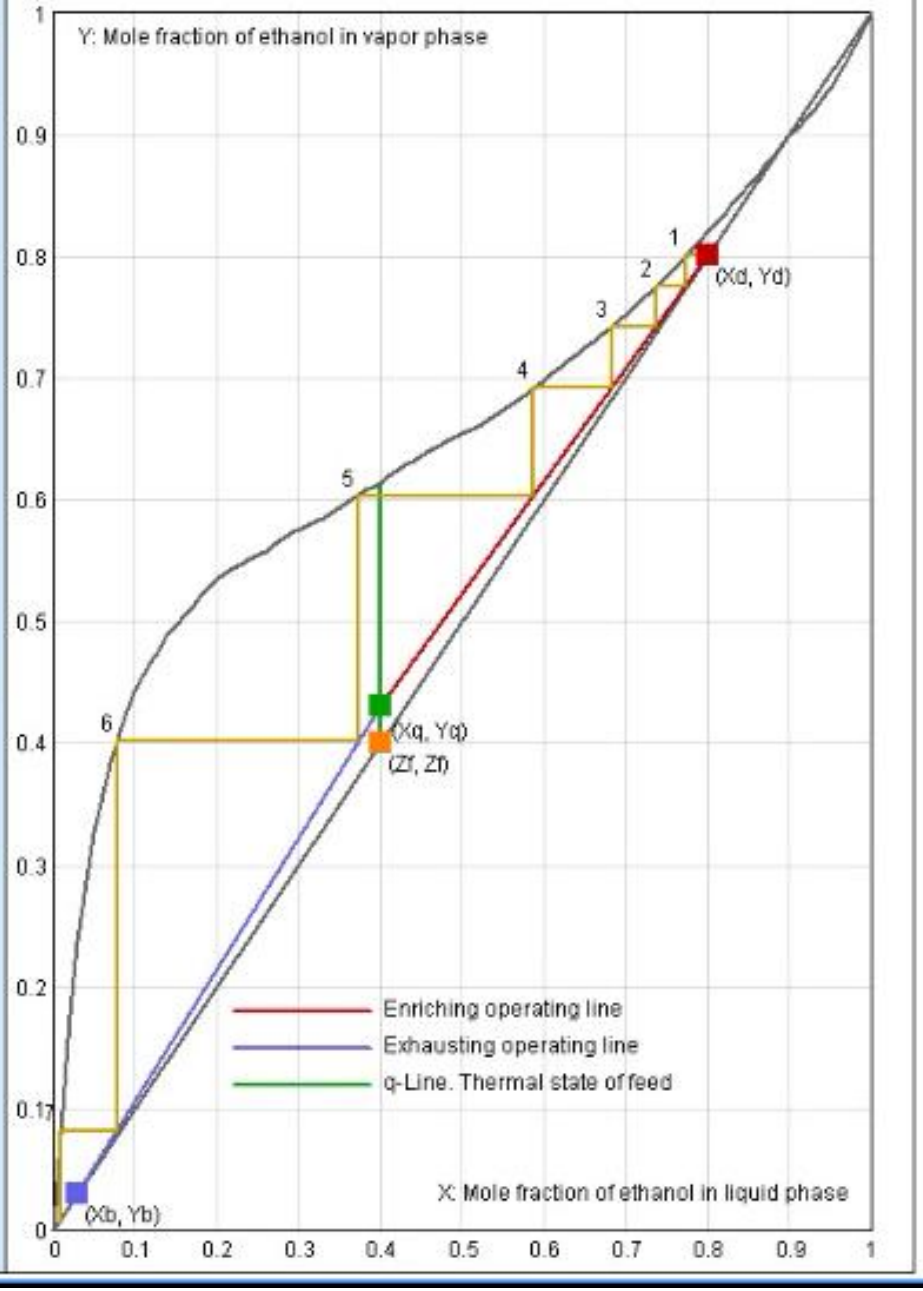
NTP = 6.69

Mole fraction in bottoms

Xb = 0.030

L D F B

Calculate Clear View report



VaxaSoftware - Number of Theoretical Plates by McCabe-Thiele Method

File Options Help

Most volatile component: ethanol Less volatile component: water

Vapor-liquid equilibrium: ○ Relative volatility ◉ VLE Table

Vapor-liquid equilibrium

Edit VLE table...

Thermal state: Parameter q: 1

Saturated liquid at its bubble point

Mole fraction in feed

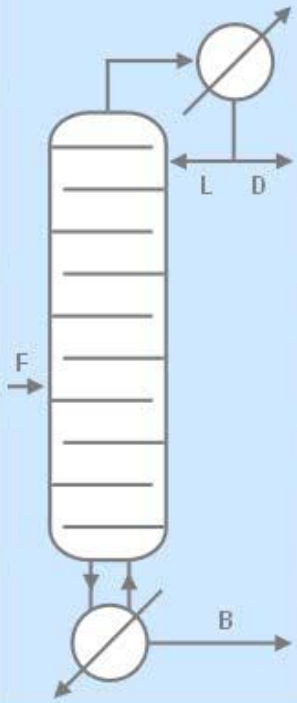
Zf = 0.400

Number of the feed plate (from top)

NF = 6.46

Number of theoretical plates (with reboiler)

NTP = **8.59**



Reflux ratio

R = L/D = 3.00

Mole fraction in distillate

Xd = 0.8

Minimum reflux ratio

Rmin = 0.86963

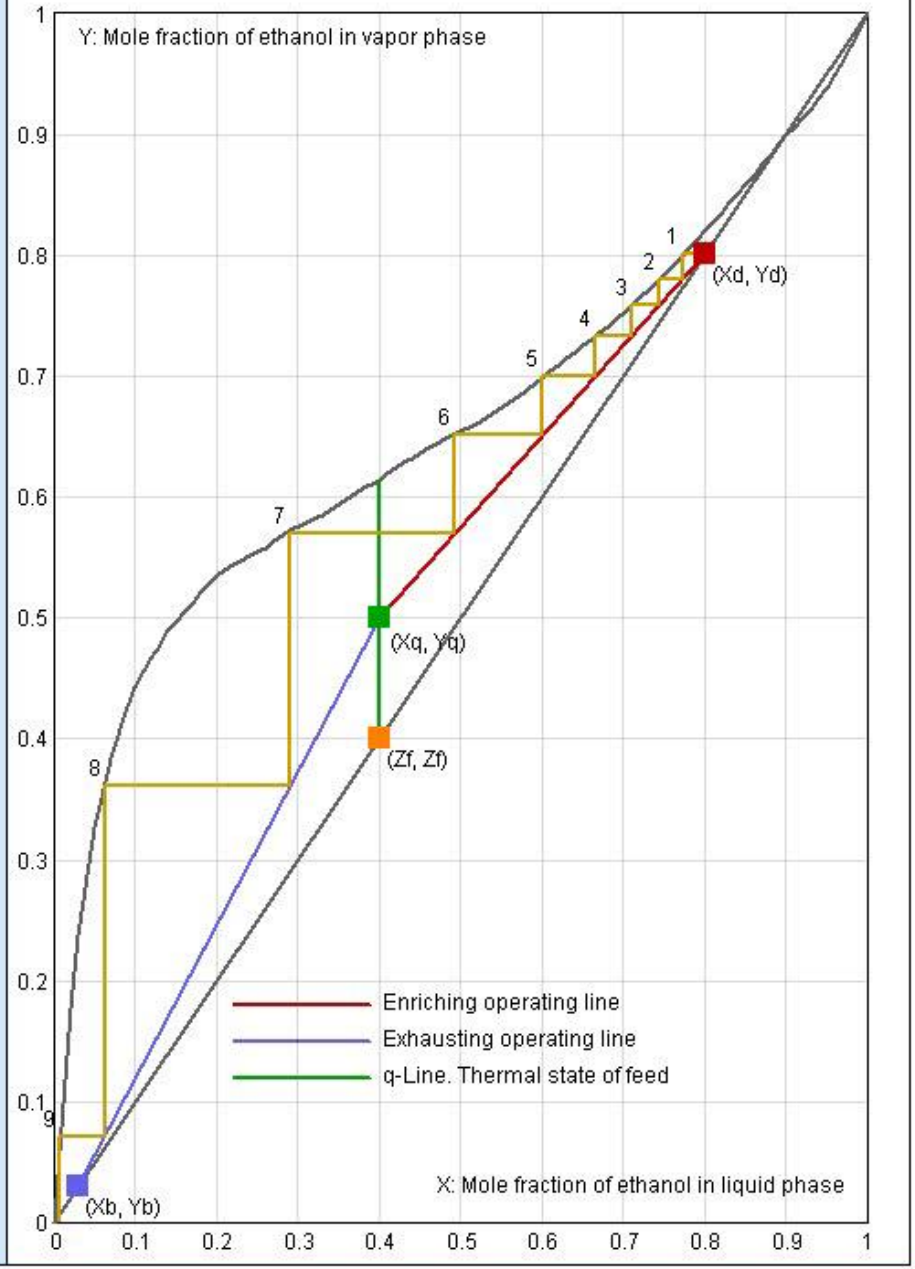
Overall plate efficiency

E = 1

Mole fraction in bottoms

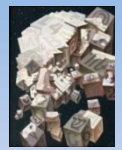
Xb = 0.030

Calculate Clear View report



Even in multimedia's learning tools the lecturer is important, because the appearances can be deceiving.

Based on Victor Molev ,,Metamorphosis”



Einstein

Einstein ?

Magic forest

Magic forest

Venus

Venus ?

Freud

Freud ?

Thank you for your attention!