The teaching of physical metallurgy based on the acquisition of soft-skills

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Abstract

For several years now, a lack of interest for metallurgy has appeared among engineering students, particularly in the study of metallic alloys. Teaching this subject therefore requires an evolution towards more adapted teaching methods, no longer focused on the acquisition of knowledge, but also on understanding phenomena by means of practical examples. This teaching method also allows students to acquire a wide range of soft-skills such as written and oral communication, time management, rigour, critical thinking, self-evaluation, ...

To this end, the classes given at the Faculty of Engineering of UMONS at the first year of the Master's degree in Chemistry and Materials Science about metallic alloys (approximately 100 hours), rely on an “inductive” approach of the use of metallic materials: case scenarios, practical exercises to apply the theory, practical lab work, industrial work, plant visits, seminars/conferences, open book oral exam focusing on comprehension.

Specifically, students will have to answer practical questions: “with which metallic material can the body of a car, a bridge, an engine block, a saucepan, a stent, ... be made?” through, for example, the preparation and presentation of lectures (about 15 hours).

During the exercises sessions (6 hours), students are asked to correct the answers of their classmates.

The reports submitted at the end of practical lab works (15 hours) must be adapted to a particular audience (young adolescents, summary report for a colleague, full report for a boss).

About 15 hours are devoted to the analysis by students (alone or in groups of 2) of real industrial cases previously solved by the Metallurgy department and offered to students in the form of project with the writing of a final report that has to be accessible to a non-metallurgist industrial customer.

The plant visits (at least 4 per year) give an illustration of the problems faced by engineers in the metallurgical industry and allow students to meet and discuss with engineers in the field.

The final exam is open book with preliminary preparation by means of a scientific article in English dealing with a subject close to core content of the class.
As soft skills are less about your qualifications and more personality-driven, it is important to consider what your soft skills are and how you might show evidence of them before you apply for a job. This is particularly true of the recruitment process for graduate programmes, where transferable skills and potential often take precedence over professional experience. Why Are Soft Skills Important? Soft skills are the difference between adequate candidates and ideal candidates. In most competitive job markets, recruitment criteria are not limited to technical ability and specialist knowledge. Once you have identified the soft skills that are most relevant to the role you are applying for, make sure you prepare to talk about them at interview and include them as keywords in your resume or cover letter.

Acquisition of skill affect performance? The ability of individuals to experience, learn and refine motor skills greatly affects their ability to perform any physical activity. This chapter explores the processes that individuals undertake when learning a new skill and how these processes can be adapted to help individuals learn these skills more easily and quickly. Chapter 8 | HOW DOES THE ACQUISITION OF SKILL AFFECT PERFORMANCE? 151. Research and Review. 1. Distinguish between the important features of the cognitive, associative and autonomous stages of skill acquisition. 2. Describe how feedback given to a learner changes between the cognitive and autonomous stages of skill acquisition. 3. Explain the differences you would see in an. The skills developed through a good physical education program are critical in ensuring that students have success in many of the sport and leisure activities common to the community. This view is affirmed in the report, Sport Education (Victorian Ministry of Education, 1987), where physical education is characterised as the “foundation stone” on which an effective sport education program can be built. It is the responsibility of the Victorian Department of Education to ensure that students in the formative years, particularly in Years P–3, develop basic physical education skills. These the fundamental motor skill stage are building upon previously learned movements and preparing for the acquisition of more advanced skills. Sequence of Instruction. Soft skills in higher education: Importance and improvement ratings as a function of individual differences and academic performance. Educational Psychology, 30(2), 221–241. https://doi.org/10.1080/01443410903560278. Article Google Scholar. Of the twenty first Century Skills listed, which one(s) do you feel were most needed to make progress on the mobile app project throughout the semester? 4. What do you feel was your greatest contribution to your team?