Student Workload and Learning Outcomes based Credit System: The example of Engineering

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In 1989, European Credit Transfer System (ECTS) was introduced as a pilot scheme in the ERASMUS programme.

**Objective:** facilitate academic recognition for the ERASMUS students by providing instruments for increased transparency and comparability, to assist recognition and portability of credits obtained in partner institutions.
Key Features

- Student-centred system based on student workload.
- Achieve objectives (learning outcomes) of a programme of study.
- 60 credits = workload of a full-time student during one academic year.
- Around 1500-1800 work hours per year.
- 25-30 student work hours per credit.
What is a credit?

- Learner workload = time required to complete all planned learning activities.
- Credits are allocated to all educational components as a function of workload.
- Workload = contact hours with teachers, individual study, laboratory activities, group work, writing reports, tests and exams.
Calculate Workload?

- Have an idea on how much required time each student spends in each learning activity.
- Consider enough time for effective learning and reflection.
- Base workload calculation on previous surveys from student reports.
- Expect significant standard deviations among student workloads.
<table>
<thead>
<tr>
<th>Activity</th>
<th>#</th>
<th>Hours</th>
<th>Workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>20</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Seminars</td>
<td>15</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Lab work</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Curriculum, articles (3,3 pages per hour)</td>
<td>200</td>
<td>0,3</td>
<td>60</td>
</tr>
<tr>
<td>Curriculum, book chapters (5 pages per hour)</td>
<td>100</td>
<td>0,2</td>
<td>20</td>
</tr>
<tr>
<td>Term paper</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Presentation of term paper (including preparation for the presentation)</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Project work</td>
<td>1</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Preparation for exam (One fifth of the time frame given in the curriculum)</td>
<td>1</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Written exam</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>421</td>
</tr>
</tbody>
</table>

**Conversion to ECTS credits (hours/1600x60)**

15.7 credits
Civil Engineering Survey of Workload

- 1800 Students – 5 year program
- Sample of 10% students of each year
- Reporting each week during one year
- Dedicated staff
- Statistical treatment
- There is no correlation between contact hours and workload
Workload varies among years
Students work less than 40 hours a week during classes
Type of assessment is correlated with workload
Grades are not correlated with workload
First and last years students have higher workloads
Credit allocation was not realistic when base don contact hours
Conclusions

* Credits in ECTS need to be monitored constantly according to workload
* Transfer of credits among schools needs to consider the form credits were calculated
* Students need to be involved in the definition of credits allocated to each unit
* Feedback from students is fundamental in a student-centered learning
THANK YOU!

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