EXTRACT OF SECOND CYCLE STUDY PROGRAMME *BIOPHYSICS* (STATE CODE – 621C72001) AT VILNIUS UNIVERSITY 2014-12-01 EVALUATION REPORT NO. SV4-580

STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus universiteto

STUDIJŲ PROGRAMOS *BIOFIZIKA* (621C72001)

VERTINIMO IŠVADOS

EVALUATION REPORT OF *BIOPHYSICS* (621C72001) STUDY PROGRAMME at Vilnius University

16. Prof. dr. Kari Keinänen (team leader) academic,
17. Prof. dr. Helmut Grubmüller, academic,
18. Doc. Bruno Cardinaud, academic,
19. Prof. dr. Laima Ivanovičienė, academic,
20. Benas Gabrielis Urbonavičius, students' representative.

Išvados parengtos anglų kalba
Report language - English
### INFORMATION ON EVALUATED STUDY PROGRAMME

<table>
<thead>
<tr>
<th>Title of the study programme</th>
<th>Biophysics</th>
</tr>
</thead>
<tbody>
<tr>
<td>State code</td>
<td>621C72001</td>
</tr>
<tr>
<td>Study area</td>
<td>Biomedical Sciences</td>
</tr>
<tr>
<td>Study field</td>
<td>Molecular biology, biophysics and biochemistry</td>
</tr>
<tr>
<td>Type of the study programme</td>
<td>University studies</td>
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<tr>
<td>Study cycle</td>
<td>second</td>
</tr>
<tr>
<td>Study mode (length in years)</td>
<td>Full time (2)</td>
</tr>
<tr>
<td>Volume of the study programme in credits</td>
<td>120</td>
</tr>
<tr>
<td>Degree and (or) professional qualifications awarded</td>
<td>Master of Biophysics</td>
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<tr>
<td>Date of registration of the study programme</td>
<td>17-08-2009</td>
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</tbody>
</table>
V. GENERAL ASSESSMENT

The study programme *Biophysics* (state code – 621C72001) at Vilnius University is given **positive** evaluation.

<table>
<thead>
<tr>
<th>No.</th>
<th>Evaluation Area</th>
<th>Evaluation of an area in points*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Programme aims and learning outcomes</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Curriculum design</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Teaching staff</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Facilities and learning resources</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Study process and students’ performance assessment</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Programme management</td>
<td>4</td>
</tr>
</tbody>
</table>

Total: **22**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated; 2 (satisfactory) - meets the established minimum requirements, needs improvement; 3 (good) - the field develops systematically, has distinctive features; 4 (very good) - the field is exceptionally good.*

V. SUMMARY

Founded in cooperation between the neurobiology and physics departments, the Biophysics Master Programme aims at a coherent continuation of the Biophysics Bachelor programme, with a focus at providing the conceptual underpinning for a broad diversity of biophysics fields and modern techniques. This highly interdisciplinary programme thus serves to complement biological research and education with a solid fundamental understanding that is essential for the cutting edge application of a broad range of biophysical techniques in the life and medical sciences.

The expressed aims and learning outcomes position the programme well in preparing the students optimally for a very diverse and demanding job market and research fields of high relevance both for industry and society. Students with a Master in Biophysics at Vilnius University are sought for nationwide by a diverse range of companies, and they are highly welcome for PhD programmes all over Europe. Indeed, the current demand seems to significantly exceed the current admission numbers.

From a curricular perspective, a wide and impressive selection of courses is offered, however with a strong focus in biology, which challenges a balanced distribution of learning outcomes and courses as would be appropriate from a sufficiently deep understanding of underlying physical concepts and techniques. In future attempts of harmonizing the Masters with the Bachelor Biophysics programme, this issue can and should be addressed in a coherent manner.

The panel applauds the programme for being driven energetically by an impressive time of high quality teachers who conduct very visible science on a national and often European scale. The panel
also was impressed by well-equipped laboratories and intensive collaborations with other research
Institutions, which both enable students to carry out challenging Masters projects in a wide range of
sub-fields and combinations thereof. The already adopted path of developing more (optional)
specializations such as molecular biophysics, systems biophysics, cellular biophysics, structural
molecular biophysics, or computer modeling should be continued.

Criteria for student performance assessment are transparent and accessible for the students.
Teachers are encouraged to further harmonize their learning outcomes with the published
documentation. Overall, the students expressed a very high level of satisfaction with the provided
opportunities and support.

On the administrative level, the Study Programme Committee (SPC) is operational and effective
on a regular basis, providing proved flexibility in adapting courses and research focus. The
Programme has developed a culture of encouraging students to rotate between labs during their
career, which broadens their perspectives and practical skills. A similar culture of encouraging
students to write their Masters Thesis in English might be considered.

III. RECOMMENDATIONS

1. The expert panel strongly encourages the study programme committee to further develop a clear
   and coherent vision towards modern biophysics. The panel is well aware of the institutional
   limitations; specifically, the thematic development of the programme is very much governed by
   the available teaching staff. The panel is also aware of ongoing and lively discussions of the
   future direction and focus of the programme. The panel would urge the SPC to spearhead this
discussion and bring it to a timely conclusion.

2. Thought should be given to strengthening the physics background in the canonical fields, e.g.,
   by considering compulsory courses mechanics, statistical mechanics/thermodynamics,
electrodynamics, and quantum mechanics / molecular physics.

3. The already adopted path of developing more (optional) specializations such as molecular
   biophysics, systems biophysics, cellular biophysics, structural molecular biophysics, or
   computer modeling should be continued.

4. Students should be encouraged to write their Theses in English.

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