Minutes on the inter-university meeting UGent/VUB Master of Science in Biomedical Engineering – October 26th 2016


Excused: Jean-Pierre Baeyens, André Skirtach, Jo Van Ginderachter, Maaike Op de Beeck, Danny De Looze, Pieter Rombouts, Carl Van Himbeeck, Peter Dierickx, Bart Jansen

Location: UGent (campus UZ), Blok B, 5th floor, IBiTech meeting room

1. Formal approval of the minutes of the meeting of September 22nd, 2016

The study programme committee of the Master of Science in Biomedical engineering (SPCmaBME) formally approves the minutes of the previous meeting of September 22, 2016.

2. Final composition of SPCmaBME 2016-2017

Members ZAP:

UGent: Patrick Segers (FEA, voorzitter), Stefaan Vandenberghe (FEA), Pascal Verdonck (FEA), Pieter Rombouts (FEA), Carlos De Wagter (FG), Peter Dubruehl (WE), Klaus Bacher (FG), Roel Van Holen (FEA)

VUB: Johan Stiens (IR, vice-voorzitter), Aldo Scafoglieri (GF), Erik Cattrysse (LK), Dirk Verellen (GF), Michel Sonck (IR), Jef Vandemeulebroecke (IR), Nico Buls (UZ/GF), Iris De Graeve (IR)

Members AAP/OAP: Amélie Chevalier (UGent), Mathias Polfliet (VUB)

Students: Astrid De Cloet, Mechiel Nieuwoudt, Hannah Notebaert, Silke Roegiers, Selin Tas, Matha Mazioumi, Laure Van De Steene, Arne Vandekerckhove

Advisory members: ZAP/AAP/OAP involved in MSc Biomedical Engineering

External advisory board: Maarten De Vleeschouwer (Materialise), Peter Dierickx (AZ Maria Middelares), Luc Fockedey (St-Jude Medical), An Fremout (Federaal Agentschap voor Nucleaire Controle), Carl Van Himbeeck (Cochlear), Herbert De Breuck (Luxilon Industries NV), Toon Van de Ven (Siemens Healthcare).

3. Announcements/communications

3.1. Student numbers
@UGent: 29 students in regular MSc (2 international) + 6 in International MSc in Biomedical Engineering
@VUB: 10 students in regular MSc (7 international).

With 45 new students in our program, the negative peak of last year is followed by a positive peak. It is noted that if student numbers would further increase, larger auditoria will have to be used at UGent-side.

3.2. Calendar - planning

To allow for a better planning, we aim to schedule OCs and important events well in advance to allow people to attend.

<table>
<thead>
<tr>
<th>OC meetings</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC meeting I</td>
<td>Thu 22/09/2016</td>
<td>VUB</td>
</tr>
<tr>
<td>OC meeting II</td>
<td>Wed 26/10 (11hr)</td>
<td>UGent</td>
</tr>
<tr>
<td>OC meeting III</td>
<td>Wed 15/02/2017</td>
<td>VUB</td>
</tr>
<tr>
<td>OC meeting IV</td>
<td>Wed 03/05/2017</td>
<td>UGent</td>
</tr>
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<table>
<thead>
<tr>
<th>Events</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Day on Biomedical Engineering</td>
<td>Fri 25/11/2016</td>
<td>Brussels</td>
</tr>
<tr>
<td>MEDICA</td>
<td>Wed 16/11/2016</td>
<td>Düsseldorf</td>
</tr>
<tr>
<td>Biomedical Industry Day</td>
<td>Wed 15/3/2017</td>
<td>Ghent</td>
</tr>
<tr>
<td>Thesis defense</td>
<td>Thu 29/06/2017</td>
<td>UGent/VUB</td>
</tr>
<tr>
<td>Deliberation July @ UGent</td>
<td>05/07/2017</td>
<td>UGent</td>
</tr>
<tr>
<td>Proclamation July @ UGent</td>
<td>Sat 08/07/2017</td>
<td>UGent</td>
</tr>
<tr>
<td>Deliberation September @ UGent</td>
<td>13/09/2017</td>
<td>UGent</td>
</tr>
<tr>
<td>Proclamation September @ UGent</td>
<td>16/09/2017</td>
<td>UGent</td>
</tr>
<tr>
<td>Graduation (diploma) ceremony @ VUB</td>
<td>16/12/2016</td>
<td>VUB</td>
</tr>
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3.3. Company visits

- Cochlear (Design and Technology of Artificial Organs) (Ma2): Wed 07/12/2016.
- Barco (via BEAM; linked to Neuro-Imaging): Thu 23/02/2017.
- IBA (via BEAM; linked to Medical Physics): Not confirmed.
- ORSI (Medical Equipment): Confirmed, date unknown.
- Luxilon (Herbert De Beuck) is willing to organize a company visit.
- NERF is also willing to organize a visit to their lab at imec.
- Siemens (through Mathias Verhelst) is considering a visit to their CT plant in Nuremberg, Germany.

4. BEAM
Contact with the VUB students has been established and their involvement is to be confirmed on a later date.

5. Individual student affairs

None

6. Program changes - cluster contents

6.1. Preparatory program

6.1.1. Bachelor or Master in Physics

The preparatory program for students with Bachelor or Master in Physics at UGent contained the 6-credit version of the course “Systemen en signalen”. This course, however, also exists as a 3 credit version, and it is this version that is listed in all other preparatory programs. For reasons of consistency, the 6 credit version of the course is replaced by the 3 credit version of the course in the preparatory program for students with Bachelor or Master in Physics at UGent.

6.1.2. Informatica in list of courses

Preparatory programs of 30/60 credits are composed of courses to be selected from a longer list. The 1st bachelor course “Informatica” (6 credits) will be added to the list.

6.2. MSc in Biomedical Engineering

The following proposal for changes to the compulsory program was discussed:

1) Replace Health care organization and Informatics (6 credits) by
   - Hospital information systems (or Health Information Systems) (3 credits)
   - Leadership in health care (3 credits)
2) Reduce in credits
   - Human and environment, safety and regulations: from 6 to 4 credits
   - Medical equipment: from 6 to 5 credits
3) Stop Seminars (3 credits)
4) New course: Clinical study design and biostatistics (3 credits)
5) New compulsory course: Multidisciplinary biomedical project + change name into Hospital project

<table>
<thead>
<tr>
<th>Biomedical Engineering</th>
<th>Sem</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Basic Life Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative cell biology</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>From genome to organism</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Modelling of Physiological Systems</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Biomedical Imaging</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Bio-electronics</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Biomechanics</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
The proposal has been thoroughly prepared by Pascal Verdonck and Jef Vandemeulebroecke. During the meeting, they provide more details on the contents of the new courses, the scope and the practical organization.

- ‘Leadership in Health Care’: this new course is based on the one hand on Seminars (i.e. the lectures on health economics and Ethics) and Health care organization and Informatics where a.o. the view of the WHO on global health problems is addressed.

- ‘Hospital Project’ should allow the student to acquire hands-on experience of working with physicians in the hospital on practical problems such as quality assurance and purchase of large goods. It is noted that the hospital project should not be conducted in the same department as the master thesis. With this course becoming a compulsory course, we will need a strong involvement from the medical staff (and the management) from UZ Gent and UZ Jette to ensure that enough projects are offered to our students, with a guaranteed commitment of the doctors. Hospital Project should, ideally, also relate to courses such as Medical Equipment or Technology and Design of Artificial Organs.

- ‘Clinical Study Design and Biostatistics’ should allow the students to perform the statistical analysis leading up to and during a clinical study.

- ‘Hospital Information Systems’ might not be the best name. It is suggested that its name is replaced by ‘Health Information and Decision Systems’ to better reflect the course content. The course should focus on data-related decision systems present in the hospital such as computed aided diagnosis systems.

A second topic of discussion is the contents and orientation of the ‘Medical Device Design’ cluster

- ‘Biomedical Product Development’ should focus on a hands-on, start-to-finish design of a product.

- ‘Medical Equipment’ should provide an overview of the different departments and which medical devices are used in each. It is noted by a number of members of the SPCmaBME, both students and teachers, that this course is rather descriptive. It is also argued that this is intended as such to a certain extent.

- ‘Technology and Design of Artificial Organs’ should teach the workings of very specific artificial organs, e.g. dialyses or ear implants.
- ‘Human and Environment, Safety and Regulation’ should focus on the boundary conditions that exist when designing medical devices.

As add-on to the discussion, Stefaan Vandenberghe suggests to relabel the compulsory cluster “biomedical engineering” into “biomedical technology”. He will also consider a less specific name for the course “Neuromodulation and Imaging”.

After the discussion, the SPCmaBME formally approves the discussed changes:

- All proposed program changes will be implemented and should thus become effective from 2017-2018 on. Patrick Segers (@UGent) and Johan Stiens (@VUB) will make sure all information and documents are passed to our respective administrations on time.
- A separate meeting will be organized with the responsible lecturers of Medical Equipment (Danny De Loose and Sunny Eloot) and Technology and Design of Artificial Organs (Guido Van Nooten, Sunny Eloot, Filip De Somer) to get a complete overview of the current contents of the course and discuss how (some aspects of) the course could stronger link to engineering aspects.

7. Internal working program board

A meeting will be set up with all module coordinators (9am-1pm or 2pm-5pm):

**Compulsory courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Coordinator(s)</th>
</tr>
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<tbody>
<tr>
<td>Basic Life Science</td>
<td>Patrick Segers/Johan Stiens</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>Patrick Segers/Johan Stiens</td>
</tr>
<tr>
<td>Medical Device Design</td>
<td>Pascal Verdonck/Jef Vandemeulebroucke</td>
</tr>
<tr>
<td>Health Care</td>
<td>Pascal Verdonck/Jef Vandemeulebroucke</td>
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**Elective clusters**

<table>
<thead>
<tr>
<th>Course</th>
<th>Coordinator(s)</th>
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<tbody>
<tr>
<td>Advanced design methods</td>
<td>Patrick Segers</td>
</tr>
<tr>
<td>Assistive Technologies</td>
<td>Johan Stiens/Bart Jansen</td>
</tr>
<tr>
<td>Micro- and Nano Devices</td>
<td>Johan Stiens/Maaike Op De Beeck</td>
</tr>
<tr>
<td>Personalized Medicine</td>
<td>Peter Dubruei/Christian Vanhove</td>
</tr>
<tr>
<td>Neuro-engineering</td>
<td>Stefaan Vandenberghe/Guy Nagels</td>
</tr>
<tr>
<td>Engineering in Oncology</td>
<td>Klaus Bacher/Dirk Verellen</td>
</tr>
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Possible dates: 07/12, 13/12, 21/12, 22/12, 09/01/17, 11/01/17, 12/01/17, 13/01/17

Agenda:
- Status portfolio
- Install “toetscommissie” which should follow-up on contents of exams, modalities, type of examination, does the exam aim to test envisioned competences, etc.
- PR and communication activities (web-site, info-brochure, communication with alumni, representation, social media, ...)

Patrick Segers will send around a doodle to setup this meeting.

8. Accreditation – visitation – quality control

CTI evaluated the MSc in Biomedical Engineering as positive.

9. Role of Strategic Advisory Board - Industrial Advisory Board

Strategic Advisory Board and Industrial Advisory Board will be merged. 1st meeting of new board: March 15 following Biomedical Industry Day.

10. Tuition Fees

It is still unclear how tuition fees will evolve at UGent and VUB. As an inter-university program, it is crucial to streamline our policies.

In 2016-2017

<table>
<thead>
<tr>
<th></th>
<th>UGent</th>
<th>VUB</th>
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<tbody>
<tr>
<td>EEA</td>
<td>230€+11*credits (890€)</td>
<td>230€+11*credits (890€)</td>
</tr>
<tr>
<td>Non-EEA</td>
<td>230€+11*credits (890€)</td>
<td>1450+25*credits (2950€)</td>
</tr>
</tbody>
</table>

Scholarship: all 105 €

Johan Stiens notes that a large number of exceptions exist to the non-EEA rule and that more often than not the regular fee is paid by the students.

From 2017-2018: increased fees for non-EU students.

@UGent: policy probably to be determined by faculties. The minimal cost will become 1730 euro (890 fixed + 840 for packet of 60 credits).

@VUB: the issue will be treated by the vice-rector for student and educational affairs.

As an inter-university program, we need to take an inter-university position. This will be discussed at the next strategic advisory board meeting. It is suggested that the inter-university master of photonics is consulted on this issue and that we propose a combined approach.

11. Time Tables

11.1. Reducing the number of UGent-VUB trips

There are some optimizations to be made in the current time tables, which could lead to less VUB<>UGent mobility (and expenses!) for the students.
**Second semester:**
- Medical Physics: co-lectured by VUB & UGent
- Medical Equipment: lectured at UGent
- Neuromodulation and imaging: lectured at UGent
  - A total of 3 trips for UGent students and 23 trips for VUB students
- Measurement Techniques in Nuclear Science: VUB
- Nuclear Physics: VUB
- Radio Protection: VUB
  - A total of 15 trips for UGent students

**Proposed solution:**
- Group ‘Measurement Techniques’ and VUB part of ‘Medical Physics’, ‘Nuclear Physics’ and ‘Radio Protection’ already grouped on Friday.
  - A total of 15 trips for UGent students
- Group ‘Medical equipment’ on one day
  - A total of 6 trips for VUB students
- Group UGent part of ‘Medical Physics’ and ‘Neuromodulation and Imaging’
  - A total of 7 trips for VUB students

**Third & Fourth semester:**
Currently undergoing changes and mostly elective courses, might require changes once the program has been reformed.

**11.2. Overlap Biomedical Product Development**

Biomedical Product Development is scheduled on Wednesday afternoon, 4pm-7pm. According to Ewout, there is one course that overlaps. In the 2nd semester, this overlaps with Medical Physics (@VUB from 1pm to 5.30pm in weeks 3, 4 and 6).

**12. Varia**