Minutes from the Medical Engineering IAB meeting

Date
The 29th of October 2015

Location
Nanoforce Boardroom

Start
2 pm

IAB Members present
Dr. Allan Ritchie (chair), Dr. Phil Jackson (Lucideon), Prof. Mehdi Tavakoli (KTN), Mr. Michael Dean (Baxter), Mr. James Grainger (St Jude), Dr. Amy Kinbrum (DePuy)

IAB Members absent
Dr. John Thomson (Vygon)

SEMS staff present
Prof. Julia Shelton (Chair of Medical Engineering DTG), Prof. David Lee (Head of School,), Dr. Federico Carpi (Director of MSc programmes), Dr. Pavel Novak (Industrial Liaison for Medical Engineering)

Introductions

All members of the board introduced themselves and briefly described their background and which industrial partner or field they represent. SEMS staff members described their role in the school. The recorded details of each member of the IAB were circulated to each member and returned with any mistakes corrected.

Actions: Update details of each member.

Terms of Reference

The board was asked to review the Terms of Reference for the IAB. The discussion that followed focused mainly on the proposed addition of section specifying the mechanisms of action to be taken following each IAB meeting. In particular, the need for such a section in the Terms of reference was questioned. DL explained the rationale behind the proposed section which is expected to work as a guarantee that there is a working mechanism for the suggestions made by the IAB to be implemented in the school.

Actions: The board agreed to add the proposed section to the description of the IAB under an appropriate heading, not under terms of reference. No comments or objections were raised to any other section of the Terms.

Composition of the Medical Engineering IAB

While discussing the role of IAB as specified in Term of Reference, an issue with representation of the different fields of specialisation within the medical engineering was raised. It was noted that at present, the specialisation of the board appears to represent orthopaedics strongly. IAB members agreed that it would be beneficial to have broader representation from e.g.-the MHRA, pharmaceutical industry and regenerative medicine industries. The importance of identifying future trends in the field has been also stressed for development of future programmes. Innovate UK and Catapult has been suggested as one of possible sources for future trends spotting.

Actions: MT to provide a list of companies that may be worth approaching to support the Medical Engineering IAB. It was agreed that SEMS with the help of existing IAB members should continue looking for ways of inviting industrial partners from the whole spectrum of Medical Engineering and related areas of clinics (such as cardiovascular, diabetes, osteoporosis, infection etc.).

Minutes from previous IAB meeting

AR drew attention to the comments stated in sections C and D in the minutes from previous IAB meeting which pointed out that marketing, commerce, and good manufacturing practise appear to be missing in the curriculum. No further comments to any other section were made and minutes were approved.

Actions: AR suggested that actions should be specified regarding the comments about missing marketing and commerce from the curriculum.

Review of Medical Engineering programme specifications

The board was asked to comment on the Medical Engineering programme specifications document and whether it reflects the needs of their medical engineering industries.

Comments on the Programme outline

AR pointed out that the programme outline states key areas of medical engineering targeted by the programme so this may serve as a guidance for selecting who should be on Medical Engineering IAB.

DL noted that the targeted areas in programme outline do not seem to reflect the latest developments in SEMS such as the use of tissue engineering for cancer research and should be updated.

AK noted that understanding regulation surrounding the industry is missing from the programme outline. PJ noted that knowledge of mechanical properties of materials should be also mentioned in the programme outline.

MT pointed out that topics such as prevention, and minimal invasive surgery do not seem to be covered. JS and AR noted that although these are relevant topics, the programme outline should reflect what we SEMS is providing rather than promising something we are not realistically able to provide. MT also asked whether available funding for research or start-ups is covered in the curriculum. DL agreed that this is important topic and is partially covered in the MEng group projects but not systematically.

A number of present IAB members stated that from their experience many medical engineers end up working in marketing and commerce and therefore these topics should be covered in the curriculum. Not in the extent of marketing courses but at least awareness of marketing, commerce and funding would be beneficial. Also understanding marketing specifics of SMEs vs big corporations would be useful.

MT suggested that the awareness of the marketing and funding could be covered in form of invited lectures given by speakers/alumni with experience in start-up/spin-off companies.

JG pointed out that soft skills are not emphasized enough in the programme. Employers are increasingly more interested in candidates with good soft skills in addition to technical skills.

AK noted soft skills such as how to talk to different professions in business are also important but does not seem to be covered in the programme.

Aims of the programme

JG would like to see ethical responsibility covered in the aims. He believes students should have understanding of ethics in medical engineering industry. Medical devices have different ethics than other outputs of medical engineering – understanding of the specifics should be included.The topic of regulations and ethics and knowledge of the different regulatory bodies covering various parts of the medical engineering industry seemed to resonate with a number of IAB members.

JS and DL noted that SEMS has modules covering ethics and regulations but students are sometimes not particularly interested in it. Board member reiterate their view that regulations and ethics is becoming more and more important. Graduates would benefit from the knowledge of ethics and regulations when looking for job. A number of board members noted that there are career opportunities for medical engineers in regulatory bodies.

AK added that the “proficiency to converse with clinical and surgical staff” should be expanded to entire medical engineering industry not just clinical and surgical staff as this an important soft skill.

Other comments to Programme specifications

The importance of soft skills and work experience was reiterated by a number of board members. Graduates with soft skills and work experience have much higher chance of getting a job.

JS noted the difficulties in teaching soft skills and getting students on work experience. Students are not necessarily interested in developing the ‘soft skills’ early in their degree programme. The specific demographics of SEMS students also poses problems regarding the industrial experience as some of them are afraid/not able to leave home.

Actions: Include understanding of regulations and ethics, soft skills, communication with a range of professions within the industry, awareness of marketing and commerce into the programme outlines and aims.

Review of recent innovations

JS briefs the board on new programmes Biomaterials for Biomedical Sciences programme, and Robotics. DL pointed out that one of the newly proposed programmes may fall in future under the remit of Medical Engineering IAB. A number of IAB members noted that the newly proposed programme of Robotics is in agreement with the apparent trend in the industry – particularly in the orthopaedics industry.

Biomedical Engineering MSc - conversion from any Science

JS asked the board to express their views on whether there is a need in industry for scientists converted into biomedical engineers.

AK expressed her worries about the feasibility of converting scientist into a medical engineer within just one year. AR noted graduates of the conversion MSc may struggle in reality. AK agreed and added that from her experience it took around 3 years for a physicist to get properly working in biomedical engineer role. JS noted that the reason for proposing this programme is there is funding available and also there seems to be demand from biology graduates. Interestingly industry seemed to be sceptical about the usefulness of this,

however AR noted that future developments in biologics throughout the medical device industries may increase the demand.

Biomedical Engineering MSc programmes with Biomaterials and Tissue Engineering, and Imagining and Instrumentation

FC briefly introduced the two proposed programmes and asked the board for their opinion.

MSc in Biomedical engineering with Imaging and instrumentation.

The programme topics seems to resonate with industrial members of IAB – they believed there is need in industry for imaging and instrumentation skills. JG notes that in the cardiovascular sector there is a need for graduates with skills in imaging techniques such as angiography, and development of new imaging techniques or skills such as setting up a cardio-stimulator etc.

The board noted the name does not sound as exciting, suggestions were to replace the word "Instrumentation" with "Devices". DL explained that the names are result of market search which shows that longer titles seem to attract more students. Imaging, instrumentation and tissue engineering were the keywords picked up by market research.

MSc in Biomedical engineering with biomaterials and tissue engineering.

Board agrees that this is an interesting area from the viewpoint of industry.

Actions: Reflect on the scepticism of industry towards the usefulness of MSc conversion from any non-numerate programme. Consider changing "Instrumentation" to "Devices" in the title of MSc in Biomedical Engineering with Imaging and Instrumentation.

Explore new potential collaboration opportunities

JS reiterated the difficulties the school has with securing appropriate amount of industrial placements and as a result the school is constantly looking for ways to grow collaborations with industry. Board members were asked to think of possible ways to improve links between SEMS and industry.

PN turned attention of board members to the last section of minutes from previous IAB meeting where all existing mechanisms of collaboration are listed together with cost estimations.

MT suggested that one way to increase collaborations with industry may be via better promotion/advertisement of existing collaborations. MT also suggested to approach the Association of British Healthcare Industries (ABHI) as a means of identifying possible companies that might offer suitable internships and 'year out' training.

AR and MT suggested a number of contacts and companies.

DL suggested that replacing one year in industry with two summer placements may be beneficial both for students and industry while still increasing the chances of getting a job in industry.

Actions: Board members to provide contact suggestions to help expand the portfolio of companies working with SEMS.