

# Minutes from the Bioengineering and Biomaterials IAB meeting

## Date

The 2<sup>nd</sup> of March 2017

## Location

Graduate Centre GC102

## Start

1 pm

## IAB Members present

Michael Dean (Baxter), John Thomson (Vygon), Dr. Phil Jackson (Lucideon), Prof Andrew Lewis (BTG)

## Apologies

Dr. Amy Kinbrum (DePuy), Prof Mehdi Tavakoli (KTN), Prof Allan Ritchie (chair), James Grainger (St Jude),

## SEMS staff present

Prof Hazel Screen (Chair of Division of Bioengineering and Biomaterials, Dr Pavel Novak (Industrial Liaison for Division of Bioengineering and Biomaterials)

## Apologies and minutes from previous IAB meeting

PN announced that chair of the IAB, Dr Allan Ritchie sent his apologies that he could not attend the meeting. For this meeting only, PN took on the duties of chairing the meeting.

PN asked whether anyone has any comments on the minutes from the previous meeting on the 29<sup>th</sup> of November 2016. JT noted that there was a mistake regarding his title. PN made a note of the mistake. No other comments were raised, and the board approved the minutes.

## Review of recent changes in curriculum

HS briefly described recent changes in the taught programmes. Most of the changes were related to the fact that we had unexpectedly high enrolment in the newly opened undergraduate programme Biomaterials for Biomedical Sciences (24 new students) and needed to review teaching allocation of academics in the division. To effectively use our resources and reduce reliance on external sources we proposed to close temporarily modules on Mechanobiology, and Biofluids and Solute Transport which had low student numbers. AL was interested to hear more about the Biomaterials for Biomedical Sciences programme. HS explained the programme is focusing on the specifics of using and designing materials in the complex and aggressive biological environment. The programme gives students quite broad range of skills from biology, through materials science and biomedical engineering and mathematics.

## Degree Apprenticeships

PN and HS briefly described the scheme of degree apprenticeships, which is a relatively new type of vocational higher education combining full-time paid work with free part-time university study. It is primarily targeted at 18-19-year old school leavers but may include 16-18-year old too. PN and HS asked IAB members about their views of the scheme, and whether there is any training need in which they would see the opportunity for degree apprenticeship in partnership with SEMS QMUL. JT noted that he is aware of the scheme and noted that there is opportunity for peripheral skills. AL noted that he was involved in something similar before. PN explains that according to the published details of the scheme apprentices are employed on a full-time basis for between one and six years, working at least 30 hours every week and going through blocks of practical on-the-job training. JT and AL say that the how is this going to be organised from the time point of view and how the contract is going to look like is quite important, as it does not seem trivial. PJ noted that he sees potential for younger apprenticeships – 16-17 years, but AL noted that he would prefer something closer to half-PhD. In general, the IAB board seems to be rather sceptical about the success & benefits of the scheme in biomedical & biomaterials engineering industry and believes that this heavily depends on exact details how such an apprenticeship would be setup with clear benefits to companies. MD added that he had quite negative experience with 16-18 year olds in his area of work due to the fact that the school does not prepare them for the industrial environment. AL added that one of the difficulties with this would be that young apprentices without enough skills/knowledge will struggle with working in such heavily regulated environment as biomedical/bioengineering/healthcare industry.

**Actions:** Reflect on the scepticism of industry regarding degree apprenticeship. If something like this is going to be setup at QMUL it needs to be very well thought through and take into account the discrepancy between the skills and capability of independent thinking/acting of school leavers and the demanding, heavily regulated environment of biomedical engineering industry.

## Centres for doctoral training

HS started by explaining that division is planning to bid for funding from EPSRC for a centre for doctoral training. HS then continued explaining the aim of the CDT centres – to provide common and relatively broad training to substantial cohort of students. The training needs to be industry relevant. At the time of the meeting the division had not yet settled on the central topic of the CDT but had identified 3 areas in which we have strong expertise – Mechanomedicine, Biointerfaces and Biomimetic materials. HS & PN then asked IAB members what kind of skills they missing when they hire PhDs or graduates from universities. JT noted that in terms of device development and healthcare policy the industry is now looking into ways of preventing patients from entering hospital – a kind of “preventative” medicine. According to his view, industry is always trying to look what is happening in 5 years away and he is missing this kind of skill of “looking ahead” in fresh PhDs or graduates. AL added that personalised medicine and diagnostics, and telemedicine are the future trends and would be worth including in the training of biomedical engineering PhDs. JT continued that university graduates or PhDs often miss broader perspective of what’s out there and where the future might be heading. Research students are often rather narrow minded and focused on one specific problem. AL added that exposure to clinicians would be beneficial too. Another important skills gap identified by the IAB board is human factor – often ignored by designers of medical devices. The fact that human beings may use the device in different way than what the designer had in mind which may affect its functionality is often ignored in research & development education. HS noted that design element could be implemented into the PhD training. AL added that another important skill is capability to predict what can go wrong. Further suggestions by JT and PJ were technologies to assist more effectively or more precisely.

surgery procedure, technologies improving efficiency of procedures in healthcare and reducing number of people coming to hospitals.

**Actions:** Include training in design, human factor, broader perspective of the biomedical industry, telemedicine and preventative medicine in the prepared CDT proposal.

## Potential collaborations

### Recruitment of students

PN asked whether anybody would be willing to record short podcasts talking about possible careers in biomedical engineering industry – kind of motivational podcasts that could be used for recruitment of UG students or during the open days. JT said it would help if he knew where our graduates end up. JT then suggested to create short clips of “talking heads” talking about what they do, something that could be then implemented on a touch screen and students can start individual clips by tapping on them. The boards suggested it may be a good idea to prepare some kind of a questionnaire to which the members may then respond and this could be recorded – as a kind of interview?

### MEng projects, half funded PhDs and other engagement with industry

HS and PN reminded IAB members that school is constantly looking for industry inspired/sponsored MEng project and invited IAB members to suggest possible topics. PJ suggested a topic that seemed to be linked to research done by Remzi Becer. PN also reminded the board that IAB members have priority for half funded PhDs and encouraged them to come back with ideas for potential projects. AL noted that he would be willing to offer site visits. JT suggested we should try to engage with industrial bodies. Industrial bodies apparently want to interact with universities. To facilitate this interaction, JT suggested we should put together a document (a leaflet?) explaining “Why would you want to sit on IAB” explaining what possibilities it offers and IAB members can take this to industrial bodies they are in contact with. AL suggested UK Biomaterials Society would be worth engaging.

**Actions:** Prepare document explaining what are the benefits of being a member of IAB board. Facilitate link between Remzi Becer and Phil Jackson regarding possible research collaboration.

## Any other matter

The next IAB date to be confirmed.

**Actions:** Send invitation e-mails to IAB members informing about the date of the next IAB meeting.