Minutes of the Joint Industrial Advisory Board (JIAB) Meeting

Location: Library Seminar Room Time: 2.30-4.30 PM Date: 29th November, 2016

Present: External Board Members:

- Dr Lucy Agyepong, MTC, Coventry
- Mr Paolo Bianco, Airbus Defence and Space, Portsmouth
- Mr Ian Care, Rolls-Royce, Derby
- Mr Ashley Gillibrand, Jaguar Land-Rover, Coventry
- Dr Christine Hannon, Rolls-Royce, Derby
- Mr Anthony Hughes, Ford, Dagenham
- Mr Mark Jiskoot, Cameron, Tunbridge Wells, Kent
- Dr Shahrokh Shahpar, Rolls-Royce, Derby
- Dr Joachim Sihler, Schlumberger Gould Research, Cambridge.

QMUL SEMS Division of Engineering Science Staff Members:

- Prof. Vassili Toropov, Chair
- Prof. Kaspar Althoefer, Deputy Chair for Research
- Dr Jens-Dominik Mueller, Deputy Chair for Student Education
- Prof. John P.W. Stark, SEMS Director of Resources
- Dr Ettore Barbieri, Admissions Tutor for Aerospace Engineering
- Dr Yi Sui, Admission Tutor of Mechanical Engineering and Sustainable Energy Engineering
- Dr Lorenzo Botto
- Dr Tomas Lukas
- Dr Fariborz Motallebi
- Dr Ranjan Vepa
- Dr Tom Verstraete
- Dr Pihua Wen
- Mr Gary Welch, Secretary.

QMUL SEMS Student Members:
Fourth Year MEng Project Group on Numerical Optimisation and Design: Adenrele Balogun, Hiwad Nasimi, Ahmed Osman; Jordan Owens, Rohan Poudel, Giri Rajenran.
PhD students: Orest Mykhaskiv; Pavanakimar Mohanamuraly;

1. Prof. Vassili Toropov (**VT**) opened the first Joint Industrial Advisory Board (JIAB) meeting.

2. All the members of the Board introduced themselves.

3. Prof. Kaspar Althoefer (**KA**) presented the key facts about SEMS and introduced the terms of reference of the JIAB emphasising

- development of graduates by providing them with the skills required for industry

- facilitation of collaboration with industry partners
- work on real problems of benefit to the society.

4. **VT** informed the board that the next item on the agenda was the appointment of a Chair. **VT** nominated Mr Paolo Bianco, Airbus Defence and Space, as the Chair. There were no other nominations. Mr Paolo Bianco (**PB**) was elected by all members of the Board by a show of hands.

5. The minutes of the last meetings of the Aerospace and Mechanical Engineering Industrial Advisory Boards held on 3rd March, 2016, were referred to.

6. At the Aerospace board's meeting in March 2016, proposals were made for new MSc programmes in Unmanned Aerospace Vehicles, Aerospace Systems and Aerospace Structures and Materials. **VT** asked the external board members on their feedback on these proposals. Next, establishing a hands-on activity such as assembling a kit aircraft was discussed. In the Aero IAB meeting in March 2016 it was stressed that the external input is essential for evaluations of options for the development of SEMS programmes of study. Also, **VT** reiterated his invitation to all external board members to come to QM and deliver guest lectures, with the aim to have an external lecture for every module. It was agreed that a list of such requirements for individual modules will be sent to the IAB members.

7. At the Mechanical Engineering board's meeting in March, the need to establish projects that encourage collaboration with industry was reiterated. Lorenzo Botto (**LB**) highlighted the importance of setting up meaningful collaborations with industry, both for industry-relevant research and student education. **LB** also mentioned that the board members emphasised the need for the students to improve their self-confidence. **LB** also brought the new QMUL Model to the attention of the JIAB members and highlighted its role in improving the student's self-confidence as well as the introduction of the social capital development into the programmes of study. Finally **LB** mentioned the importance and challenges of teaching methodologies of dealing with large volumes of data (Big Data) which require the application of optimisation and statistical analysis tools.

8. **PB**, the newly elected JIAB Chair, presented the view of Airbus Defence and Space on improving student confidence particularly through the use of systems engineering. There was a discussion on the role of systems engineering and its aspects which could be focused upon. **PB** felt that putting graduates on a steep learning curve seemed to increase their overall self-confidence, and stressed the importance of not learning a small amount in many areas of a topic but to be more focused on the most important areas.

LB stated that there is a need to improve a range of skills for the students as they need to understand how to transfer their skills into the real world. Dr Lucy Agyepong (**LA**) felt that there was a need to include manufacturing skills into the programmes of study to improve graduate prospects.

VT encouraged the external Board members to visit and talk to students about their personal experiences emphasising a role of a positive example. Dr Christine Hannon offered to share some of her experiences in industry with the students as she felt that the students would benefit from this, this was gratefully accepted.

9. Jens-Dominik Mueller (**JDM**) then presented an overview of the current programmes of study in Aerospace, Mechanical, Robotics and Sustainable Energy Engineering (15 undergraduate and 6 taught postgraduate programmes). A new programme in Chemical

Engineering is to be introduced in 2017. Two new MSc programmes are also under preparation.

10. **JDM** also presented the structure of the current undergraduate and taught postgraduate programmes. **JDM** also presented a summary of the envisaged future developments, particularly focusing on the increase of the practical/laboratory content of the programmes. He also mentioned a new initiative, QMUL Model, and its role in introducing extracurricular activities into the programmes to be counted towards a degree. **VT** discussed the newly proposed MSc programme in Aerospace Structures and Materials, which is being introduced, with a possibility of a collaborative provision with the Northwestern Polytechnical University in Xi'an, China. In this connection, **VT** mentioned that Dr Pihua Wen would be responsible for putting together this new MSc programme.

11. **JDM** then talked about the student education requirements, emphasising: i) the need for industrial engagement with student projects, possibly, with a provision of an industrial sponsorship, ii) the need for industrial engagement by offering guest lectures within individual modules, iii) rewarding the best students with sponsored prizes.

12. The importance of following up with regard to industry participation and extending invitations to guest lecturers was highlighted by **LA**.

ACTIONS:

- **JDM** to establish the timeline for industrial engagement with projects (3rd year individual, 4th year team, MSc, PhD) and circulate to IAB members.
- The Board should be sent an agenda/additional info prior to the meeting to save time on having to explain many topics/items.

13. The MEng student group engaged in a project on Numerical Optimisation in Design was then invited to make a presentation to the board.

The board members made comments and asked questions concerning the management of the project. Dr Shahrokh Shahpar raised a technical issue concerning the feasibility of meshing multi-element aerofoils. These will be addressed within the project.

14. **KA** presented an overview of the research, briefly covering the activities of all groups within the Division of Engineering Science. He mentioned the ongoing refurbishment of the Robotics Lab and Aero Lab.

15. Future funding for projects, particularly those currently funded by the EU, was briefly discussed. **LA** also pointed out that there was considerable funding available for projects within the UK via the Innovate UK and ATI initiatives.

16. **PB** pointed out the long lead time required to prepare for collaborative projects with industry. Academics should not try and initiate collaborations only a week or two ahead of funding deadlines but start this process well in advance.

17. **VT** raised the issue of setting up a Centre for Doctoral Training (CDT) in Design Optimisation. One of very important requirements is to demonstrate the existence of strong industrial links and support related to the research in the proposed area. A discussion followed in which **PB** mentioned that setting up CDTs is extremely competitive. A potential interest was expressed by the Board.

ACTION:

- **KA** to send to the board a call for PhD sponsorship.

18. Proposed date of next meeting: 2nd March, 2017 (to be confirmed)

Minutes recorded by Dr Ranjan Vepa and Mr Gary Welch