STUDENT BRIEFING ON TEAM DESIGN PROJECTS (TDP) 2016/17

Introduction
During Michaelmas term of your third year, you undertake a teamwork project. This should take about 100 hours for MS students and about 75 hours for MEM students. The lower load for MEM students reflects the fact that Economics and Management lectures take place during the period of the TDP; the intention is that MEM students contribute somewhat less to progressing the research & design phase of the project but contribute an equal effort to MS team members when it comes to the assessed elements of written report and oral presentation. Please note that both the Faculty of Economics & the Said Business School have agreed not to schedule tutorials for MEM students during the first two weeks of MT. The projects will primarily concern design and market analysis, though they may also include limited experimental work if you wish. These projects will require the skills of more than one person, and they are open ended so that decisions about how to be selective within the time constraints will be an explicit part of the exercise. The projects are designed to promote working in teams, i.e. managing a team project, dividing up the work load between team members, and reporting on it regularly.

The aim of a TDP
The aim of the project is to provide you with experience of and insight into the product design process and of working in a team. Your objective is to produce a report in the form of a detailed design proposal which could, for example, be used by a manufacturer/company as the basis for a marketable product, or by an engineer as the basis for a new process. These proposals will contain sufficient design notes and background science, together with market evaluation and a brief justification of the financial viability of your product/process, including approximate costings for only a small number of critical elements*, to enable company experts (for example the chief engineer & finance director) to evaluate the feasibility of your design in terms of (i) fitness for purpose, (ii) the practical production process and (iii) the business case (does the product have a reasonable prospect of making a profit, or breaking even in the case of a charitable purpose?). Your report must include your evaluation of (i), (ii) & (iii).

* A detailed breakdown of costings for every aspect of production, development, marketing, sales, etc. is not required and if provided will gain no additional marks. Likewise, going beyond a brief justification of financial viability will gain no additional marks. Normally one side of A4 will be sufficient to cover the required brief justification.

Method
The design exercise will be primarily a paper one, although if you wish you may evaluate some aspects experimentally and even include a demonstrator product in your final presentation. As is common in industry, your design will be constrained by the limited time available, and you will have to work efficiently and enthusiastically to get your final report and presentation ready.

You must decide on your own management structure and organization, this includes assigning tasks, reporting and time planning.

Supervision
Each project will have a member of staff as a supervisor, who will provide guidance and technical advice. Do not expect him or her to do your design for you. Your supervisor will provide a report to the Examiners covering your approach to and engagement with the project but does not assess the TDP; assessment of all the TDP’s is carried out by two of the Part I Examiners. As a guide you might expect seven to ten contact hours of supervision, including verbal comments on a draft report if this is provided to your supervisor not too
close to the deadline for submission. Limited written feedback on your draft may be provided too, such as annotated short extracts to provide examples of improved content/grammar/style/communication. Ten contact hours is the maximum permissible per team – this includes any read-through of the draft report and any attendance at a practice of your talk.

Your supervisors attend a joint briefing with the TDP Organiser (AOT) and the Chair of Examiners (TJM). Among other things, this helps to establish similar levels of supervisory support for each team.

Meetings
The students and supervisors for each project will meet on a regular basis, at times arranged by the individual project supervisors. The supervisors will provide the design brief, and other relevant material and will help you to plan an overall timetable for your project.

Log-book
You must keep a bound log-book in which all your design work and notes are entered. Do not work on scrap paper. Entries may be in manuscript and/or you may glue word-processed notes into this log-book, but if you adopt the latter approach you must do this regularly in order to maintain a timely record of your day-to-day progress. Include in this log-book a record of who attended each meeting you hold, who has been assigned any given task and by when they should report back to the team on that task. Supervisors will read your log-book from time to time, and it will be submitted to the examiners.

Telephone, post and incidental expenses
A telephone will be available at set times in the teaching laboratory for telephone calls to industry, etc., where this will help with your projects. Letters in connection with your project may be sent through the main reception. Small amounts of money are available for local travel, consumables, etc.; simply obtain the approval of your supervisor and then ask me to authorise the expenditure.

Presentations
You will give verbal progress presentations to your project team from time to time, using slides where appropriate. Expect and give constructive criticism.

Final Reports and Presentations
The word-processed report must be written as a team project, with the primary author of each section identified. In an annex to the report you are asked (i) to indicate which team members contributed over the two weeks of the project to the work described in each section and (ii) to state explicitly the overall word count of the report. In total you should allow 1,000 - 3,000 words per team member (3,000 per team member being an absolute maximum for ALL text including appendices and figure captions), and < 12 figures absolute maximum per team member. Your report should be written in such a way that it can undergo initial evaluation in half an hour! In addition to the main report it must include an abstract or executive summary, and within the main report you must include a section that sets out clearly (i) what is the ‘prior art’ and (ii) what are your team’s design contributions that have advanced on this prior art. Following their initial evaluations the Examiners will then assess each report in detail. You will be required to make a professional standard presentation (involving all the team members) to members of staff including the TDP Examiners. Your attitude should regard them as potential board members, i.e. intelligent and influential people(!) whom you wish to convince of the merits of your product, but who do not know as much as you do about your specialism. You should expect to limit your presentation to half an hour, including allowing a full ten minutes for coping with interruptions and answering questions. This will need very careful planning and rehearsing.
There is no perfect model for a good TDP report; each project is different and good reports are in any case much easier to recognise than to prescribe. Nonetheless you may find it helpful to refer to one or more of the following examples of good reports, copies of which are held in the Materials Library (please ask the Librarian for access):

‘System for monitoring water quality in areas where ‘fracking’ takes place, Sam Eardley et al, 2013
‘A Schools/Open day Kit for Photo-elastic Stress Analysis’, Caroline Humphrey et al, 2006

[Note that prior to MT 2016 more detail was expected in the ‘costings’ section of the project and report than is requested of your year group]

Your attention is drawn to the statement on plagiarism in Appendix A of the FHS Handbook.

Three copies of your team report must be submitted to Philippa Moss’ Assistant, in the Hume Rothery building by 12 noon on Tuesday of Week 3 of Michaelmas Term. The report must include a declaration of authorship and a proforma for this purpose will be issued by Philippa’s Assistant. The presentation will be on Friday of week 3. Marks will be awarded both for the overall standard achieved and for individual contributions. The total project counts as the equivalent of half a general or options paper, and you are advised to budget your effort accordingly.

What are the Examiners looking for in your Report & Presentation?
Annexed to this briefing note is a copy of the marking sheet and supervisor’s report proforma as used by the Examiners for the TDP in the previous year. The subsections on this marking sheet, together with the present briefing note [especially (i) paragraph two on the aim & objectives of the TDP, (ii) the section on Final Reports & Presentations and (iii) the present section], give you an idea of what the Examiners will be looking for in the report & presentation. The marking guidelines are deliberately defined in outline only; this is to give you the flexibility to write up and present your project in the best way for that particular project.

In arriving at the project titles and outlines your TDP supervisors have noted (i) the aim and objectives of a TDP as described in paragraph two of this briefing document and (ii) the following guidance from the examiners, who have vetted all projects in advance:

A TDP should enable the students to apply and build on their degree level knowledge of Materials Science; that is to say normally it could not be done well by, for example, an A-level science student.

The TDP topic should also enable a quantitative element in the application of the Materials Science, including the use of equations.

Given the open ended nature of the TDP, you too must bear in mind the need to (i) meet the aim, objectives and examiners’ guidance when you decide in what direction(s) to take your project and (ii) demonstrate in your report that you have done so.

Useful Resources:
1. Some helpful lecture notes, edited by Dr Ian Stone, on ‘Design & Manufacturing of Materials’ can be found at http://www.materials.ox.ac.uk/teaching/ug/ugtdp.html
2. The Departmental Library has several copies of the book, *Effective Team Leadership for Engineers*, by P. Wellington & N. Foster (Institution of Engineering Technology, 2009). There are some useful initial insights into successful teamwork in sections 1.1-1.5, 1.9, 1.10, 2.11, 2.13 (not the exercise), 10.4, and 10.5 (pp163-164 only).

3. The lecture notes from the Year 2 Entrepreneurship module given by Dr Stuart Wilkinson, available from the Materials WebLearn site within the Undergraduate Resources/FHS/Engineering & Society folder ([https://weblearn.ox.ac.uk/portal/hierarchy/mpls/materials/ug](https://weblearn.ox.ac.uk/portal/hierarchy/mpls/materials/ug))

I wish you a successful and rewarding teamwork project. Adrian Taylor.
Title:

Names of Examiners:

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Project mark out of 50:

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1) How independent have been the students in carrying out the project, and to what extent have you, as supervisor, had to direct their work? If you have made significant input, please give a brief description of your involvement.

2) Were the individual contributions of the students approximately equal, or was there any student in the team who contributed substantially more or markedly less than the others? Please outline any particularly outstanding contributions by individual members of the group.

3) Were there any factors beyond the control of the students which had a significant impact either on the successful completion of the TDP as a whole, or on the contributions of an individual student?

4) Please summarise (i) what is the ‘prior art’ and (ii) what are the team’s design contributions that have advanced on this prior art.