Ref. No.
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Projects on Promoting Outcome-Based Approaches in Student Learning
2007-08
Application for OBA Funding

PART I: General Information

1. Title

Employers survey on student learning outcomes in science, engineering and technology disciplines

2. Name(s) of Applicant(s)

Project Leader

Name	Dept	Post	Groupwise	Ext.
Charles Surya	EIE	Professor	ensurya	6220

Team Member(s)

Name	Dept	Post	Groupwise	Ext.
Chi Kin Leung	EIE	Assistant Professor	enchikin	6260
F.G. Shin	AP	Professor	apafgshi	7629
Geoffrey Q.P. Shen	BRE	Professor	bsqpshen	5131
Steve Frankland	ISE	Visiting Associate Professor	mfsteve	5267
Daniel Chow	HTI	Associate Head and Professor	htdaniel	7674
Jack Kwan	SAO	Counseling specialist	sajack	6803

3. Total funding requested

4. Expected duration of project: ____18____ **months**

Proposed commencement date: 1-April-2008

Expected completion date: 30-Sept-2009

PART II: DETAILS OF PROPOSAL

1. Project objectives and significance

(What are your objectives in initiating this project? How does it align with institutional goals and targets in implementing outcome-based approaches in student learning?)

This is a joint proposal between different departments offering programmes in engineering-related fields for the establishment of a joint surveying procedure with the employers on the expected outcomes for our graduates. This is an important step toward the establishment of the outcome based education in the engineering programmes. Through discussions with the different DLTC/FLTC chairs among the various Departments/ Faculties with engineering related programmes, it is decided that it would be most cost-effective if the different Departments/Faculties would collaborate together to achieve the stated goals above as there may be significant overlap among the potential employers.

To successfully implement outcome based education it is important to establish: i.) objective benchmarks for the outcomes of the programme; and ii.) a feedback mechanism whereby the outcomes will be re-evaluated regularly. These ensure that the programme will be regularly updated to meet the needs of the industry as well as our graduates. In this proposal we propose to conduct the following investigations:

(i) consolidate and identify similarities in the documented programme outcomes (generic and professional) of different engineering and engineering-related programmes;
(ii) identify the actual outcomes of the engineering graduates;
(iii) to establish the survey questionnaires;
(iii) to conduct face to face interviews with employers on the desired outcomes for our graduates;
(iv) conduct industrial survey(s) to identify the expectations of employers/companies who employ our engineering graduates;
(v) find out whether the engineering graduates possess the outcomes that meet the expectations of the employers; and
(vi) identify the mismatch amongst documented programme outcomes, actual graduate outcomes and employers' expectations.

2. Target users

(Who are the intended users of the 'deliverables' of the project – faculties / departments management or programme/subject teams or students?)

The DLTC and programme leaders of all the departments in FENG, CLU and the Department of HTI for updating of the programme outcomes from the data obtained in the employers' survey process.

If the target users are students, complete the table below:

Programme/ subject code	Programme/subject title	Credit units	Mode of study	Student intake quota per year

Please insert rows in the table if more space is required for additional information.

3. **Outcomes and deliverables**

(a) **Major outcomes and deliverables**

(What will be the major outcomes and deliverables of the project?)

	Major outcomes and deliverables with descriptions
(a)	Employers' views about expected learning outcomes and key skills of their employees in engineering and engineering-related discipline
(b)	Employers' views about learning outcomes and key skills possessed by our graduates
(c)	Recommendations and procedures for porgramme and curriculum improvement to bridge the gap between (d) and (e).
(d)	
(e)	
(f)	

Please insert rows in the table if more space is required for additional information.

(b) **Plan for developing and piloting / implementing the deliverables**

(Detail the plan and procedures that you will adopt to develop and pilot/ implement the outcomes and deliverables. Also specify the dates of the pilot / implementation period)

Stage 1: (1 May to 30 July 2008)
(1) Review of programme documents to identity the programme ogjectives and the intended learning outcomes for our students
(2) Identification of employers who employ graduates from our different programmes.

Stage 2: (1 Aug 2008 to 30 Nov 2008)
(4) Literature survey of similar studies and instruments used
(5) Design of survey questionnaire for employers
(6) Design of face-to-face interview framework and the question

Stage 3: (1 Dec 2008 to 31 Mar 2009)
(7) Piloting of questionnaire survey for about 8 companies (two in each field)
(8) Piloting of face-to-face interview for 2 companies
(9) Fine-tuning of instruments

Stage 4: Field Work, data collection and analysis (1 April 2009 30 July 2009)
(10) Field work on questionnaire survey and face-to-face interview
(11) Collection of data, data cleaning, data entry and data analysis
(12) Preliminary results dissemination through a briefing session with selected employers

Stage 5: Report Writing (1 Aug 2009 to 30 Oct 2009)
(13) Consolidation of results, findings, and recommendations
(14) Report writing
(15) Dissemination of findings through workshop or seminar in PolyU

Planned pilot / implementation period of the deliverables:
Start Date (dd/mm/yyyy): ......1-May-2008..................
End Date (dd/mm/yyyy): ......30-October-2009.....................

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4. **Dissemination and sharing plan**

   (How are you going to disseminate and share the outcomes and deliverables of your project?)

   As mentioned above, the followings will be arranged for dissemination of preliminary results and final results:

   ### Preliminary results
   Briefing session(s) with selected employers, to disseminate preliminary results about the study. Through this briefing session, employers can give their feedback about the preliminary results and this will help the research team to develop recommendations and way forward actions for continual programme and curriculum improvement

   ### Final results
   After the publication of the final report, lunch time seminars/workshops will be held with Education Development Center to report on the findings and the recommendations. The seminars and workshops can serve as a platform for the research team to explain in details the findings for the stakeholders to "buy-in". These can also facilitate further discussions and sharing of views among stakeholders for future work on outcome-based education.

Evaluation plan

(How do you plan to evaluate the effectiveness of the project, particularly its impact on the implementation of outcome-based approaches in student learning in the PolyU?)

Since the project aims as identifying gaps between students learning outcomes and employers' expectation, and the procedures or steps to be taken to narrow/remove such gaps, the success indicators of this project can be both short-term and longer-term evaluations, as follows.

Short-term evaluation

At the end of the project, the final report will be disseminated to the employers. An opinion survey about the recommendations contained in the report will be done for the employers. The percentage of employers who would give their endorsement of the recommendations can be taken as the short-term success indicator

Longer-term evaluation

After the recommendations have been implemented and the first batch of graduates produced, the employers' views about the gap between students' learning outcomes and their expectation will be surveyed again. The extent to which the gap is being narrowed will be taken as a success indicator of the research project.

6. Impact

(How will the project contribute to the success of the implementation of outcome-based approaches in student learning in the PolyU/ department/ programme/ subject?)

The project will impact on the outcome-based approaches to learning and teaching in several ways:

(1)   Continual programme improvement: The project will establish an effective procedure to "close the feedback loop" for continual programme improvement, which is a necessary component in outcome-based education

(2)   Evidence-based decision making: Our students' learning outcomes and employers' expectation are thoroughly studied so that rogramme and curriculum improvement can be made in accordance with evidence gathered.

(3)   Employers engagement: Employers' views are sought and cherished in this project. Hence they are engaged more actively in our learning and teaching process. This will enable us to establish long-term relationship with the employers, and to design our programmes and curriculum so that students are trained with more employability.

7. Target date(s) for submission of progress and completion reports

	Planned submission date (mm/yyyy)
1. Progress report *(for projects whose duration lasts more than 1 year; to be submitted mid-way through the proposed project period)*	**31-1-2009**
2. Completion report *(to be submitted within 3 months after the project completion date)*	**31-1-2010**

PART III: BUDGET OF PROPOSAL

Project Leader

Name: CHARLES SURYA   Signature: _____
             (in block letters)

Dept: _____EIE_____   Date: _____31-1-2008_____

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PART IV: DEPARTMENTAL ENDORSEMENT

Endorsement by Chair of FLTC/ DLTC:

Comments on the proposal:

Name: _____ Signature: _____ Date: _____
    (in block letters)

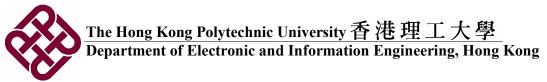## Endorsement by Dean/ HoD:

Comments on the proposal:

By endorsing this proposal, I agree that:

1. The proposal suitably addresses the School/Department's needs in promoting and implementing outcome-based approaches in student learning and will be considered as part of the School's/Department's Business Plan.

2. The School/Department will receive a funding as calculated for item (e) in the Budget section which I will use for providing the time release recommended by the project proposers, based on the Total Workload Model, to support them to work effectively on the project.

Name: PROF. ALEX WAI,   Signature: _____ · Date:
    Dean(ENG)   31 January 2008
    (in block letters)

Please return this form to Miss Miranda Fung, Secretary of Working Group on Outcome-based Education,

c/o Educational Development Centre

by **31January 2008**

The Hong Kong Polytechnic University 香港理工大學
Department of Electronic and Information Engineering, Hong Kong

MEMO

To: Miranda Fung, EDC
From: Professor Charles Surya
Date: 25-4-2008
Re: LTC proposal on OBE

I would like to address the issues raised regarding the LT project entitled "*Employers survey on student learning outcomes in science, engineering and technology disciplines*".

1. *Clarify the scale and scope of the actual survey to be carried out in the project:*

   It is estimated that we will survey 12 employers for each department. This will amount to a total of 96 employers. However, due to the synergism among the different disciplines we expect substantial overlap between these employers. Our estimation at this point is that our needs should be well met by surveying 50 – 60 employers.

2. *State in further detail the process of carrying out the interviews and administration of the questionnaires:*

   There are actually significant amount of work that needs to be done prior to the interviews. First the questionnaires will be carefully designed to ensure that it will provide the relevant information from the employers we need for updating our programmes. Secondly, we need to ensure that the questionnaires and the interview must be structured in such a way that departments at which the issues are being directed to during the interview can be identified. Thirdly, the interview will be conducted face to face between our project fellow and representative of the employer. Lastly, useful data must be effectively extracted and tabulated from the completed questionnaires and the interviews.

   Based on these design considerations, the following phases of the process can be identified:
   (i)   Design of interview questionnaires. This needs input of experts' ideas from the academic departments and from the industry. A structured interview framework and the actual interview form would have been designed.
   (ii) Pilot run of the interview questionnaires with a few selected employers so that potential design loopholes (e.g. ambiguity, mistakes) can be uncovered.

(iii)   Actual conduction of the interview. This requires background works such as making appointment and delivery of background materials to the company employers before the interview

(iv)   Data analysis. During the interview, audio recording will be taken. After the interview, the audio recording will be transcribed into text and analyzed according to a common framework to extract relevant information.

3. *Justify the budget for one project fellow and two project associates by stating clearly their duties within the 18 months:*

4. *Consider reducing the budget by establishing synergy among the departments involved:*
As discussed above, synergy among 8 departments has already been made use of in designing this project and in setting the budget. We have been very careful and conscientious in setting the budget. Any further lowering the budget will result in a compromise of the quality of the project.

Sincerely

_____
Prof. Charles Surya
EIE