

II

<b>Project Information</b>	
Project Title (in English)  Development and Implementation of an Integrated Student Information System (ISIS) for Supporting Teaching and Learning in Hong Kong Post-Secondary Institutions	Project Title (in Chinese)  開發和實施綜合學生信息系統 (ISIS) 以支持香港專上院校的教學與學習
<b>A. Project Summary</b>	
<i>(please provide an executive summary of the project proposal in no more than 500 words).</i>	
<p>In recent years, the post-secondary education has played a major role in the community to provide wide-range of programmes and articulation paths for students. Many successful stories have been heard from both media and graduates, confirming the importance of sub-degree education in the society. Most importantly, the Government has been providing lifelong education opportunity for students by putting tremendous financial efforts in supporting sub-degree institutions and promoting the recognition of such programmes both locally and internationally. This has encouraged and motivated many students to seek for continuing education and become a whole person. Based on the statistics, the size of the Community College at Lingnan University (CCLU) has increased by 40 percent since the 2008/2009 academic year. The College expects another 50 percent increase in the upcoming 2010/2011 academic year. In order to manage a vast number of student records and thus provide academic services such as academic advising, career guidance, and articulation recommendations to the students and graduates, designing and developing a tailor-made Integrated Student Information System (ISIS) for the local sub-degree sector institutions is proposed.</p> <p>CCLU is the first community college located at a university campus, where students can gain full access to the academic resources and amenities so as to enjoy a true tertiary education life. Since the structures of sub-degree and undergraduate programmes are different, the University “Banner” student information system cannot fully meet the unique educational and administrative needs of the College. Currently, the College is offering various levels of programmes, including Project Yi Jin (PYJ), Diploma (DIP), Higher Diploma (HD), Pre-Associate Degree (Pre-AD), and Associate Degree (AD). There is no student information system in the market readily meet the comprehensive needs of tracking students from different programmes and ensuring they meet the admission and articulation requirements.</p> <p>Besides, the new “334” academic structure introduces another new challenge to the College. For instance, the new incoming students from the “334” structure will possess a totally different qualification. The prospective graduates will also need individual academic advice to facilitate and enhance their employability. However, all these objectives can never be accomplished through the current student information system. Even the mainstream commercial systems such as Oracle/PeopleSoft may require an extensive customization before they can meet our needs. The development and maintenance cost can become a burden upon the College and students. Therefore, we would like to propose a long-term cost-effective solution in this project to investigate and develop an Integrated Student Information System (ISIS) in order to serve the needs of both our college and the local sub-degree education providers.</p> <p>This ISIS project consists of investigation, development, testing, and evaluation of an open source solution using OpenSIS as the potential platform. Feasibility and needs assessment will be a part of this project in the initial stage. Design and development of the student information system using open and community source will be the major outcome and project product. With the success of the previous CMS project funded under QEGS, we are confident that through our research findings, the new ISIS is expected to be a comprehensive solution for the higher and continuing education providers in Hong Kong which supports effective and efficient academic services, such as academic advising, career guidance, and articulation recommendations. Aside from the development of a working system, the College strongly encourages and anticipates our research findings to be published in international conferences and academic journals to make a contribution to the international community as well as the local institutions. We also expect the developed product to be shared with other local institutions so that others may benefit from the Government supported project.</p>	

## B. Project Objectives

*(please identify the needs of the target recipients and explain how the project aims to address the needs).*

The primary objective of this project is to investigate, design, and develop a cost-effective Integrated Student Information System (ISIS) product using open and community source framework to manage students' information for supporting academic related services. Our target recipients include students, administrative staff, teaching faculty and potential employers of the graduates.

Focus Group	Quality Enhancement and Features Available Through the ISIS
Faculty	Central access to students records; academic advising management; student background access; recommendation for academic related matters, etc.
Administrative Staff	Admission and registration modules; central access to student records; internal communications and announcements to current students; course registration management; job posting; and local and overseas programme information, etc.
Students	Effective course registration; advices on electives selection; academic study plan; graduation progress tracking; job searching; articulation recommendations, etc.

There are several major target goals accomplished through this project:

- ✓ Study the feasibility of Hong Kong-wide adoption of open source Student Information System (SIS) as a replacement of commercial SIS such as Banner system.
- ✓ Conduct needs assessments to serve as the preparatory process for developing details in functional requirements.
- ✓ Seek for and study potential existing open source platforms such as OpenSIS to investigate the possibility of generating a customized solution using these sources in the community.
- ✓ Develop a cost-effective and comprehensive ISIS with a centralized database to maintain students' academic records, community services and activities participated. All data can be directly used for course registration, academic advising, and articulation throughout their study path across Project Yi Jin, Diploma, Higher Diploma, Pre-Associate Degree, and Associate Degree programmes.
- ✓ Develop a customized course registration system to allow students easily select and enroll courses to fulfill graduation and articulation requirements.
- ✓ Design and implement a tailor-made student advising application module embedded into the ISIS to assist academic counselors to advise students on academic matters.
- ✓ Design and implement an online career service center embedded into the ISIS to recommend and filter jobs matched with students' background and interest as well as the functionality to allow employers to post job recruitments onto the system.
- ✓ Facilitate other language enhancement projects in identifying students who have language enhancement needs, e.g. keeping language exam sub-grades (reading, writing, listening, and speaking).

This project aims to develop a working system to meet the goals and needs of the College. With the centralized web-based student information system, all target recipients can access to students' information anywhere at any time when network connection is available. After testing and evaluation, the end product is expected to be openly shared across all local institutions offering sub-degree programmes.

**C. Outcomes and Deliverables of Project**

*(please include the expected number of target beneficiaries and explain how they will benefit from the project).*

The outcomes of this project will be beneficial to all students, teaching faculty, and administrative staff from the self-financing post-secondary institutions in Hong Kong in academic advising, career guidance, and articulation recommendations. In addition, potential employers can share the benefits by posting job advertisements in the ISIS to recruit prospective graduates matching with job descriptions and requirements.

The project outcomes will be delivered in the following forms:

- ✓ Design of an open source ISIS that is more cost effective, flexible, efficient, and suitable compared with any existing commercial system.
- ✓ Development of a customized web-based ISIS which facilitates academic services such as academic advising, career guidance, and articulation recommendation features.
- ✓ Maintain language exam sub-grades in the ISIS (reading, writing, listening, and speaking) and make it available for web-based presentation
- ✓ Sharing of research findings by published in international conferences and academic journals.
- ✓ Project website for promoting the outcomes and allowing free distribution of the ISIS upon request.

About 5,000 full-time and part-time students, administrative and teaching staff of the CCLU is expected to gain an immediate benefit from the project outcomes brought by the newly developed ISIS.

Upon completion of this project, continuous development and enhancement will be followed. Through workshops, seminars, and training sessions, the College expects to further enhance the function of the ISIS. Future collaboration with other local colleges is possible.

<b>D. Implementation Details</b>	
Phase I (6 months)	
Months 1-2	Recruit 2 full-time research assistants
Months 3-5	Formation of a research group to conduct surveys, feasibility study and focus group study for the following objectives:- <ul style="list-style-type: none"> <li>✓ To investigate the expectations and requirements on an ISIS of the college and other institutions;</li> <li>✓ To investigate the existing open source student information systems such as openSIS and study their suitability to be adopted in local post-secondary institutions.</li> </ul>
Month 6	Generate an initial list of required functionalities of an ISIS
Phase II (6 months)	
Months 1-2	Develop a prototype to improve requirement elicitation
Month 3	Conduct 1 <sup>st</sup> internal testing on the prototype by a small selected group of administrative staff and teachers
Month 4	Review testers' feedback and make improvements on the prototype
Month 5	Conduct 2 <sup>nd</sup> internal testing on the prototype and generate a requirement specification document
Month 6	Develop a plan for the development of an ISIS based on a chosen open source SIS. The development is to be divided into 3 stages: <ul style="list-style-type: none"> <li>✓ Stage 1 – core functionalities of an SIS</li> <li>✓ Stage 2 – course registration system module and qualifications framework support</li> <li>✓ Stage 3 – online career service center module, student advising application module, and language enhancement project support</li> </ul>
Phase III (6 months)	
Month 1	Setup a development server and a testing server
Months 2-4	Develop a pilot system with stage 1 functionalities
Month 5	Conduct internal testing by a small selected group of administrative staff and teachers
Month 6	Receive testers' feedbacks and make improvements on functionality
Phase IV (6 months)	
Month 1	Conduct load testing on the pilot system and make improvements on stability
Months 2-4	Implement Stage 2 functionalities to the pilot system
Month 5	Conduct internal testing by a small selected group of administrative staff and teachers
Month 6	Receive testers' feedbacks and make improvements on functionality
Phase V (6 months)	
Month 1	Compile user and administration guides, and conduct workshops to teach the use of the system to administrative staff and teachers
Months 2-3	Conduct a test of larger scale by teachers and students of the College
Months 4-6	Implement Stage 3 functionalities to the pilot system
Phase VI (6 months)	
Months 1-3	Conduct a production trial run by running the system parallel with the University Banner system
Month 4	Receive feedbacks and make improvements on functionality and stability
Months 5-6	Evaluate the cost and benefits of the project, identify the critical success factors of an ISIS in Hong Kong, and promote the system to other institutions

<b>E. Implementation Schedule</b> <i>(Please extend this table if necessary.)</i>		
Estimated start date of project:		August 2011
<b>Action</b> <i>(please indicate key milestones)</i>	<b>Timeframe</b>	<b>Cashflow Requirement</b>
<ul style="list-style-type: none"> <li>✓ Feasibility studies on the requirements and existing open source SIS applications</li> <li>✓ Needs Assessment conducted among faculty and staff for drafting documents related to system design requirements and development</li> </ul>	August 2011 – January 2012	280,000
<ul style="list-style-type: none"> <li>✓ Prototype development and internal testing, and development of project plan</li> </ul>	February 2012 – July 2012	240,000
<ul style="list-style-type: none"> <li>✓ Pilot system development with core functionalities and internal testing</li> <li>✓ Evaluation</li> </ul>	August 2012 – January 2013	386,000
<ul style="list-style-type: none"> <li>✓ Load testing, pilot system development with admission record system, course registration system module and qualifications framework support, and internal testing</li> <li>✓ Concurrent system parallel running begins for experiment and training</li> </ul>	February 2013 – July 2013	240,000
<ul style="list-style-type: none"> <li>✓ Large-scale internal testing, and pilot system development with online career service center module, student advising application module, and language enhancement project support</li> </ul>	August 2013 – January 2014	262,000
<ul style="list-style-type: none"> <li>✓ Production trial run, and evaluation and promotion of the system</li> </ul>	February 2014 – July 2014	272,000

Estimated completion date of project:

July 2014

<b>F. Project Budget</b>							
<b>Projected Expenditure</b> <i>(Please provide detailed breakdown under each item)</i>	<b>Amount in HK\$</b>						
	<b>Phase I 6 Mths</b>	<b>Phase II 6 Mths</b>	<b>Phase III 6 Mths</b>	<b>Phase IV 6 Mths</b>	<b>Phase V 6 Mths</b>	<b>Phase VI 6 Mths</b>	<b>Total</b>
a. Manpower - 2 Full Time RAs with a total salary budget of HK\$40,000/m - Recruitment advertisement	240,000   6,000	240,000   	240,000   	240,000   	240,000   	240,000   	<u>1,446,000</u>
b. Equipment / Facilities - Computers (2) 10,000@ - Application and Web Servers (2) \$48,000@ - Database server (1) \$48,000@ - Data backup server (1) \$12,000@ - Other computer peripherals	20,000     2,000	     	96,000  48,000  2,000	     	    12,000  2,000	     	<u>182,000</u>
c. Services - Fees for focus group study (15 persons x \$500@)		7,500		7,500			<u>15,000</u>
d. General Expenses - Books and references - Miscellaneous	3,000 2,000		2,000		2,000		<u>9,000</u>

e. Others (e.g. auditor's fee)							
- Software	12,000						
- Cost of organizing a workshop					8,000		
- Cost of setting up a promotion website					9,000		<u>128,500</u>
- Administrative fee (e.g. Auditor's fee)						32,000	
- Contingency (about 3.5%)	21,100		24,800		21,600		
<b>Total Expenditure :</b>	<b>306,100</b>	<b>247,500</b>	<b>412,800</b>	<b>247,500</b>	<b>294,600</b>	<b>272,000</b>	<u><b>1,780,500</b></u>

█ To be contributed by CCLU (total amount \$100,500)

Projected Income	Amount in HK\$						
	Phase I 6 Mths	Phase II 6 Mths	Phase III 6 Mths	Phase IV 6 Mths	Phase V 6 Mths	Phase VI 6 Mths	Total
a. (e.g. fees received)							
b.							
<b>Total Income :</b>							

### Sources of Funding

- a. Amount of grant sought under this application: \$1,680,000
- b. Other sources of funding (*this may include donations, contributions from the applicant/its parent organization, etc. Please give the name(s) of the sponsor(s), the amount of funding, and indicate whether the funding has been secured.*):
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_

### G. Monitoring and Self-evaluation Mechanism

Academic Affairs and Quality Assurance division, and the subject team of IT / Maths of the College will assume the roles of monitoring and formative evaluation. Regular meetings will be held for key project members to report the progress as well as the difficulties encountered. The meetings are expected to join team forces to discuss project strategies in order to ensure a smooth development process and meet the project deadlines.

## H. Management Support and Key Personnel Involved

Management support will be provided by the Academic Affairs and Quality Assurance division of the College. Besides, the key personnel involved in this project include:

Dr. Edward Fung Pui-wing, Dean of the Community College and Further Education

Ms. Cindy Siu Sau-yin, Associate Director

Dr. Lisa Law Ying-ngor, Assistant Director (Academic Affairs and Quality Assurance)

Ms. Daisy Chow Yuen-man, Assistant Director (College Advancement and Programme Coordination)

Ms. Janice Choi Kin-ying, Head of Teaching Faculty

Mr. Ho-yin Cheung, Head of Business Programmes

Ms. Jennifer Lee Fung-yea, Deputy Head of Quality Assurance

Ms. Vienna Lee Shuk-kuen, Manager (Quality Assurance)

Mr. Winn Chow Wing-yiu, Deputy Head of Teaching and Learning Services

Mr. Justin Lam Chak-hung, College Lecturer

Mr. Gary Wong Ka-wai, Assistant College Lecturer

Ms. Olivia Kwok Yeuk-ting, Assistant Information Officer

## I. Special Justifications if the Grant Sought Exceeds \$2 million

### III Other information

#### 1 Project Sustainability *(If applicable, please describe how the recurrent expenditure involved will be met after completion of the proposed project)*

The developed ISIS will be maintained by the IT team and Registry Office of the College. The adoption of open and community source framework will minimize the expenditure incurred as compared with other existing commercial systems. The one-off grant will be wisely utilized in the pre-development and development stages specified in the previous sections.

#### 2 Preparatory work done *(If any)*

Initially, the project team has been exploring a possible adoption of openSIS, which is a free student information system that rivals costly commercial alternatives in looks, functionality and ease of use and administration. openSIS is the centerpiece of an evolving set of integrated open source education applications that support schools and districts. Although it is uncertain that this piece of software system can be a feasible ground to build the new platform upon, this gives a clear vision about the project development during the investigation.

#### 3 Past experience in organizing projects of similar or relevant nature and achievements *(If any)*

- ✓ The project team has completed the first QEGS funded project “Adoption of Open Source Course Management System (CMS) in Post-Secondary Institutions – A Pilot Study.” The key team members will continue their contribution to the ISIS project so that the gained successful experience can be sustained and transferred.
- ✓ The team has worked out the paper “Needs Assessment and Design of Course Management System (CMS) using Open and Community Source Frameworks in Post-secondary Institutions” for the presentation at ACM SIGUCCS 2010 in Norfolk, USA in October 2010.