Curriculum Information Management System

Project Charter

<table>
<thead>
<tr>
<th>Revision</th>
<th>Author(s)</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>v 1.0</td>
<td>D. Miller, J. Costa</td>
<td>2007/07/23</td>
<td>First Draft</td>
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Motivation

The College of Medicine has identified the need for a software solution to aid in the development, access, and maintenance of its medical education curriculum in a distributed model of education.

Background

As undergraduate medical education at the University of Saskatchewan continues to evolve, additional challenges compound existing difficulties in curriculum development and management. A Curriculum Information Management System (CIMS) can help alleviate issues in a number of areas including improving curriculum planning, satisfying accreditation standards, facilitating the introduction of “vertical themes” to the curriculum, and supporting a distributed model of education.

Curriculum planning within the College of Medicine has traditionally been predominantly paper-based and isolated within individual departments. Lack of a centralized system for curriculum planning has limited the ability of the Curriculum Committee to assess existing coverage of certain topics within the curriculum, to determine whether overlaps exist within the curriculum, and to evaluate the merit and / or necessity of curricular changes.

Monitoring of the curriculum content provided within each department, in order to ensure that the medical school’s educational objectives are satisfied, is an accreditation standard (ED-37 of the LCME\textsuperscript{1} Accreditation Standards). Centralized responsibility for the design, management, and evaluation of the curriculum is also an accreditation standard (ED-33 of the LCME Accreditation Standards). During the last full accreditation review of the University of Saskatchewan College of Medicine, management of the curriculum was identified by the LCME and CACMS\textsuperscript{2} accreditation survey team as an area requiring improvement. The Curriculum Committee was created in response to this identified deficiency. However, in the March 2006 LCME decision which removed the College of Medicine from probationary status, curriculum management was cited as an area which required additional progress. Use of a curriculum information management system to gather and maintain curricular details in a centralized database will support the work of the Curriculum Committee, improve communication on curriculum content and planning among the various groups involved in this work, and help the College of Medicine to fully meet accreditation standards related to management of the curriculum.

As part of the College of Medicine’s undergraduate medical education strategy, “vertical themes” have been introduced. Instead of teaching certain major topics in a single comprehensive class, topics are vertically integrated throughout the undergraduate curriculum, in order to deliver information to students at times when the knowledge can best be applied. Although beneficial to the students, this dispersal of content throughout multiple courses leads to the possibility both of omissions and redundancy in topic coverage. A centralized curriculum management system would provide the ability to monitor the teaching of vertical theme topics.

\textsuperscript{1} LCME: Liaison Committee on Medical Education
\textsuperscript{2} CACMS: Committee on Accreditation of Canadian Medical Schools
across multiple courses offered by different departments, and would simplify planning for the introduction of new vertical themes.

De-centralization of medical instruction at the University of Saskatchewan presents another set of challenges. As more clinical teaching moves out of university hospitals and into the community and rural settings, enabling remote access to curricular materials becomes a necessity. Community-based faculty should be able to easily access learning objectives in order to be able to assess the level of instruction which may be required by students under their supervision. Students should be able to access learning objectives and learning materials regardless of their geographic location. The initiative to support a distributed model of education also presents challenges in monitoring the individual learning experiences of students in remote locations. A curriculum information management system is an essential tool for meeting these and other demands of a distributed model of medical education.

### Objectives of the CIMS Project

- Provide a centralized, easily accessible source of information about curriculum content
- Aid faculty in course design, maintenance, and planning
- Satisfy accreditation standards re. centralized control of curriculum, monitoring of curriculum content, and ensuring that educational objectives are met
- Aid staff and students in course coordination, scheduling, evaluation, information dissemination and sharing
- Provide an easily accessible means of assessing the curriculum in order to ensure adequate coverage of topics and objectives, and to assess any existing gaps in the curriculum
- Provide reliable and easily accessible centralized storage of curricular content
- Provide a single source of information for CurrMIT³, and a simplified process for providing data to CurrMIT
- Support the distributed model of education as outlined in the College of Medicine’s Integrated Plan, by providing access to curriculum information and course materials to faculty and students, regardless of location
- Provide an on-line curriculum for undergraduate medical education, as stated as an objective in the College of Medicine’s Integrated Plan

### Project Sponsors

- Dr. William Albritton, Dean, College of Medicine
- Dr. Lou Qualtiere, Assistant Dean, Undergraduate Medical Education

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³ CurrMIT: Curriculum Management and Information Tool of the Association of American Medical Colleges (AAMC)
Stakeholders

- The College of Medicine
- Faculty
- Medical students
- Administrative staff of the UGME office
- Curriculum Committee
- University of Saskatchewan
- Health Regions (Saskatoon Health Region, Regina Qu’Appelle Health Region etc.)

Limitations

- The CIMS project will focus on the management and delivery of the undergraduate medical education curriculum. Admissions processes are outside the scope of this project.
- The CIMS software is not intended as full course planning and on-line course delivery tool. Although some capabilities for course delivery may be included in CIMS, instructors will still be encouraged to use the university’s chosen course delivery and management tool (WebCT / Blackboard) in cases where additional course delivery functionality is required.

Assumptions

- All departments involved in undergraduate medical education will be required to use the CIMS system to enter and maintain information about courses within the department.
- CIMS will become the single trusted source for all curricular information provided to CurrMIT. Where modification to CurrMIT data is required, this information will be modified within CIMS, then exported from CIMS to CurrMIT.
## Project Scope

### High level functional requirements

The CIMS *must* include functionality to support the following objectives:

<table>
<thead>
<tr>
<th>1. Curriculum Management</th>
<th>1.1 Define curriculum content for each Phase</th>
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<tbody>
<tr>
<td></td>
<td>1.2 Define course structure (sessions within each course, sections within each session)</td>
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<tr>
<td></td>
<td>1.3 Associate learning objectives to courses, sessions, and/or sections</td>
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<tr>
<td></td>
<td>1.4 Associate topics to courses, sessions, and/or sections</td>
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<tr>
<td></td>
<td>1.5 Associate educational methods with courses, sessions, and/or sections</td>
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<tr>
<td></td>
<td>1.6 Associate assessment methods with courses, sessions, and/or sections</td>
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<td></td>
<td>1.7 Modify learning objectives, topics, educational methods, assessment methods associated with courses, sessions and/or sections</td>
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<td></td>
<td>1.8 Attach learning materials to courses, sessions, and/or sections</td>
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<td></td>
<td>1.9 Roll existing course definitions over to the next academic year, or copy a course as starting point for a new course definition</td>
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<td></td>
<td>1.10 Provide an easy-to-use interface for accessing and maintaining curriculum information</td>
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<thead>
<tr>
<th>2. Curriculum Planning</th>
<th><strong>Curriculum Queries</strong></th>
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<tbody>
<tr>
<td>2.1 Ability to determine where certain topics are covered in the curriculum</td>
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<tr>
<td>2.2 Ability to determine where certain objectives are met by the curriculum</td>
<td></td>
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<tr>
<td>2.3 Ability to determine where certain educational methods are used</td>
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<tr>
<td>2.4 Ability to determine where certain assessment methods are used</td>
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<tr>
<th>3. Curriculum Delivery</th>
<th><strong>Calendar Functionality</strong></th>
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<tr>
<td>3.1 Provide a calendar view of the curriculum for each Phase</td>
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<tr>
<td>3.2 Provide a personalized curriculum calendar for each user (shows all relevant courses, sessions, sections for individual faculty and student users)</td>
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<td>3.3 Provide the ability to link from the calendar to specific</td>
<td></td>
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<tr>
<td>Section</td>
<td>Description</td>
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| 2. Curriculum Planning | **Curriculum Queries**
- 2.5 Flexible reporting interface for the creation of ad hoc reports about curriculum content
**Course Development**
- 2.6 Support for draft and published modes for course content (enable collaboration on course development) |
| 3. Curriculum Delivery | **Calendar Functionality**
- 3.6 Modifiable personalized curriculum calendar which allows each user to also schedule their own events
- 3.7 Integration of the personalized curriculum calendar with other calendars (e.g. Outlook, PDA )
**Clinical Experience**
- 3.8 Ability for clerkship students to log clinical learning experiences
- 3.9 Ability to monitor clinical learning experiences of students (individually and as a group) |
| 4. Interface to CurrMIT | 4.2 Provide ability to import existing curricular data from CurrMIT |
| 5. Communication | 5.3 Discussion forums for courses
- 5.4 Chat rooms for courses |
| 6. Program Evaluation | 6.1 Course evaluation functionality (creation, distribution, monitoring, collection of evaluations)
- 6.2 Ability to complete subjective evaluations of students |

**Accessibility Requirements**
- The CIMS must be a web-based application. It is necessary that the CIMS is easily accessible from any location, without requiring the installation of additional software on the user’s computer.
**Project Constraints**

The primary project constraint is the timeframe. The CIMS should be in place and fully operational in time for the 2008/2009 academic year.

Cost is also a limiting factor; however, cost is a secondary constraint. If tradeoffs are necessary between increasing the overall project timeframe or increasing the cost, limiting the timeframe will take precedence.

**Structure of the CIMS Project**

The CIMS project will be undertaken in three major phases:

- **Pilot project**
- **Evaluation phase**
  - Outcomes of the pilot project will be assessed. Deficiencies in current solution will be identified and addressed.
  - Go / no-go decision on implementation of the CIMS software throughout the undergraduate medical education program will be made, based on the results of pilot project and plans to overcome any identified deficiencies.
- **Implementation of CIMS software**

**Objectives of the Pilot Project**

- Demonstrate to the project sponsors the benefits of CIMS in terms of centralized curriculum management, course planning and design, and course delivery
- Determine whether the evaluated CIMS product adequately meets the needs of the undergraduate medical education program
- Identify any functionality gaps which would need to be addressed prior to a full roll-out of a CIMS in the undergraduate medical education program
- Gain acceptance from faculty members for the implementation of a CIMS
- Assess the level of acceptance and use of CIMS among target users (faculty, staff, students)

**Risks**

- Lack of acceptance of CIMS, and lack of commitment from departments and/or individual administrators and faculty members to its use for curriculum design and maintenance
  - Usefulness of the system for curriculum management will be limited if complete information is not available
Strategy:
- Work with departments to ensure there is an adequate level of understanding of the purpose of the CIMS.
- Ensure faculty and departments receive clear communication throughout the project, explaining expected timelines for implementation and roll-out of the CIMS.
- Provide adequate training to staff and faculty members in the use of the CIMS.
- Ensure that administrative support personnel are trained on the use of CIMS. It is likely that administrative support staff will be asked to use the CIMS on behalf of faculty members.
- Provide on-going support in the use of the CIMS (through the Teaching and Technology Centre, other strategies?)
- Use the pilot project to demonstrate the benefits of the CIMS for curriculum design and maintenance tasks, and to overall curriculum monitoring. For participation in the pilot, select faculty members who will be influential in convincing their colleagues of the benefits of this software. Ensure that the pilot project experience of participating faculty is a positive one.

- Students do not access CIMS on a regular basis
  - Effectiveness of any workflow-based components of CIMS is limited if the system is not accessed regularly.
  - Strategy:
    - Ensure CIMS is easily accessible by students from any location. Minimally, CIMS must be web-enabled. In addition, the ability to access CIMS using a PDA would be beneficial.
    - Make CIMS a central part of the student experience.
    - Regular use of CIMS could be guaranteed by making CIMS a central portal for medical students to all services.
      - Would require integration of CIMS with other applications, such as PAWS.
    - Level of acceptance of CIMS by students could be measured through a pilot project.

- Faculty members do not access CIMS on a regular basis
  - Effectiveness of any workflow-based components of CIMS is limited if the system is not accessed regularly.
  - Strategy:
    - Level of acceptance of CIMS by faculty could be measured through a pilot project.
    - Successful use of CIMS during the pilot project by a department, or other subset of courses within the medical education program, could help to sell the advantages of the system to other departments and faculty members.
    - Ensure CIMS is easily accessible by faculty from any location. Minimally, CIMS must be web-enabled.
• Length of time required to set up course information in CIMS deters faculty use of the system
  o The usefulness of CIMS as a curriculum management tool is dependent on the CIMS database containing complete and up-to-date curricular data on all courses within the undergraduate program. Usefulness is limited if course information is missing.
  o **Strategy:**
    ▪ Use current information within CurrMIT as a starting point. This should reduce data gathering and data entry required by departments.
    ▪ Provide adequate training to faculty and departments on the use of CIMS
    ▪ Provide support for the use of CIMS by faculty members and departments (through the Teaching and Technology Centre ??)

• Resistance to use of CIMS for distributing course materials
  o Faculty may be hesitant to post course materials to CIMS if there are concerns about copyright issues, access to materials by unauthorized personnel, use of materials for evaluating faculty members etc.
  o Usefulness of CIMS as a tool to facilitate distributed learning is limited if course materials are not available through the system
  o Usefulness of CIMS as a tool to provide students with easy access to information is limited if faculty members do not commit to its use
  o **Strategy:**

• Lack of standardization in mapping of curriculum to objectives and topics
  o If standards are not adopted for curriculum mapping, effectiveness of the curriculum information management system for analysis of curriculum coverage and gaps will be limited
  o **Strategy:**
    ▪ Define standards to be followed for curriculum mapping, outlining in detail the particular mapping lists which are to be used for particular purposes, prior to rollout of CIMS
    ▪ Decide whether any lists of University of Saskatchewan-specific objectives and/or topics are required. Finalize contents of these lists and make the lists available with the CIMS prior to rollout.
    ▪ Include explanation of standards to be followed for curriculum mappings in all faculty and administrative staff training
    ▪ Publish the standards for curriculum mapping. Ensure standards are easily located and accessible

• Unwillingness of faculty / departments to move course data into CIMS if significant time has already been invested in setting up course delivery through PAWS
  o CIMS is not proposed as a replacement for WebCT. However, any course delivery work which was done through PAWS should be migrated into CIMS for easy and integrated access by students and faculty
Strategy:
- Ensure that faculty understand the motivation for implementing a CIMS, and the benefits of its use
- Deliver a clear message to faculty explaining policy re. use of WebCT, PAWS and CIMS for course delivery
- Offer assistance in migrating materials from PAWS into CIMS

Lack of adequate project resources
- In order to enable a smooth roll-out of CIMS software to faculty, staff and students, and to ensure positive user experiences with the software, adequate personnel must be allocated to training, support, and communications
- Strategy:
  - Estimate project resource requirements early in the process, and include these requirements in the project plan and budget

### Timeline

<table>
<thead>
<tr>
<th>Project Phase</th>
<th>Expected Start Date</th>
<th>Expected Completion Date</th>
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<tbody>
<tr>
<td>Definition of high-level project objectives</td>
<td>July 12, 2007</td>
<td>August 15, 2007 (Curriculum I.T. Subcommittee Meeting)</td>
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<tr>
<td>Selection of software solution for CIMS</td>
<td>n/a</td>
<td>August 15, 2007 (Curriculum I.T. Subcommittee Meeting)</td>
</tr>
<tr>
<td>Pilot Project scope planning (detailed requirements for functionality to be included in the Pilot)</td>
<td>August 15, 2007</td>
<td>September 7, 2007</td>
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<tr>
<td>Pilot Project setup</td>
<td>August 15, 2007</td>
<td>September 7, 2007</td>
</tr>
<tr>
<td>Pilot Project o Initial stage of pilot involves use of CIMS for curricular mapping only o Roll-out to students during the pilot would begin in January, 2008</td>
<td>September 10, 2007</td>
<td>May 13, 2008</td>
</tr>
<tr>
<td>Evaluation Phase (assess outcome of Pilot Project; identify next steps)</td>
<td>May 13, 2008</td>
<td>May 20, 2008</td>
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