**ALBERTA COUNCIL
ON ADMISSIONS & TRANSFER**

Computing Science Articulation Committee
Institutional Updates

Institution: **Southern Alberta Institute of Technology – Information Technology Software Development diploma program**

1. Program changes (new or deleted courses or programs of study)

CURRICULUM UPDATE

Course CMPS 237 IT foundations:

This course was delivered for the first time this past academic year. Based on student feedback we will be making the following adjustments:
- Reduce time spent on objectives pertaining to researching the IT field, personal career planning, and developing a personal professional networking strategy.
- Incorporate Linux and PowerShell into the course. Included within the Linux section an intro to MySQL.
- Continue to provide instruction on the basics of Word.
- We will drop teaching Excel (it is covered in HREL 250) and will drop the HTML/CSS introduction.

CPRG 250 Database Design and Programming

This year we switched to an Oracle 12C Textbook and Quiz bank. We also introduced a project where students go through the complete database lifestyle including: designing a conceptual model/logical model/physical model, creating ORACLE tables with constraints, importing sample data and generating reports. In addition, we made components of the midterm and final assessment more hands-on.

For next year's delivery we will be moving to Oracle 12C Enterprise Edition through the use of a virtual Machine. Also, we will be updating content, quizzes, assignments, and exams for Oracle 12c.

CMPS 253 Interface Design

This year we increased collaborative work through the use of class-based discussions, design peer feedback, and discussion boards. In addition, we introduced a project component where the students selected a problem which they worked through the User Centred Design process. As part of the project, students created short (under a minute)

videos to help demonstrate their ideas. Also, we placed a heavier emphasis on sketching as part of the user interface design process. Lastly, students gave multiple presentations during both their lab and class time.

CPRG 256 Web Fundamentals

This year we introduced a module on Bootstrap, a frame work that allows for Responsive Design. We plan to increase our depth of coverage of this topic next year.

CPRG 307 Database Programming and Testing: (new for fall 2017)

As identified last year, the course will be incorporating more formal testing as part of the curriculum. Testing will be integrated throughout the course rather than being taught as a separate, disparate concept. The SQL Tuning portion of CPRG 300 will be removed from this course.

This course, currently using Oracle 11g Express Edition, will migrate to Oracle 12c Enterprise Edition in the fall of 2018

CPRG 311 Advanced Object-Oriented Programming

This past year we incorporated a more test-driven development approach. Unit and integration testing have been streamlined into all programming assessments.

CPRG 352 Web Application Development

Through the efforts of one of our ITNS instructors, we set up servers that allowed us to create groups of virtual machines. Each VM had the development environment and services required to create and deploy the programs. We assigned each student their own virtual machine and they accessed this using Remote Desktop. We will continue this approach next year.

For the next academic year, we will be adding in a new lab activity which will cover how to create a production environment and handle deployment.

DBAD 300 Introduction to Database Administration

As identified last year, this course will be adding a portion of the SQL Tuning element that was removed from CPRG 307. Specifically, there will be a focus on the structures in the RDBMS that enable / aid in SQL performance and how, as software developers, we can leverage this to improve our SQL code.

This course, currently using Oracle 11g Enterprise Edition, will migrate to Oracle 12c Enterprise Edition in the winter of 2019.

CMPS 369 Operating Systems for Software Developers

For the next academic year, we will completely migrate to Windows 10 and Ubuntu 16.04.2 LTS. More configuration and administration tasks will be practiced in labs to support the DevOps movement.

INTP 362 Emerging Trends and Technologies

This past academic year students researched and presented on the following topics:

> Unreal Engine 4, AngularJS, CSS Precompilers, Git, ASP.NET MVC, Spring Boot, Advanced CSS3, Lua, Arduino, Spring, C#, Lambda Functions, Machine learning, libGDX, NodeJS, Bootstrap, DirectX, Unity, PHP, Genetic Algorithms, React JS, Path finding algorithms, Python, Ruby, NoSQL, Drools

Courses not identified remain unchanged. Our instructors continually work at keeping their course activities updated and to respond to student feedback.

2. Admissions requirements changes for high school and transfer students

Current Admission Requirements:

Completion of the following courses or equivalents:

a) At least 50% in Math 30-1 or Pure Math 30, or at least 60% in Math 30-2 or Applied Math 30, **AND**,
b) At least 55% in English Language Arts 30-1, or at least 60% in English Language Arts 30-2.
c) All applicants must demonstrate English Language Proficiency prior to admission, including students educated in Canada (Completed three years of full-time instruction in the English language, with a minimum of 12 hours instruction per week; OR Successfully complete assessment testing). More details can be found at http://www.sait.ca/admissions/admission-and-selection/english-proficiency

Early Admission Criteria

Early admission will be offered to applicants who have achieved or will achieve:

- The admission requirements, **AND**,
- At least 60% in Pure Math 30 or Math 30-1, or at least 70% in Applied Math 30 or Math 30-2, **AND**,
- At least 65% in English Language Arts 30-1, or at least 70% in English Language Arts 30-2.

Early admission will be offered until February 15 or until the program is full.

Selection Criteria

- Applicants who do not qualify for early admission, or who qualify after the early admission deadline has passed, will be academically ranked according to the admission requirements and may be interviewed (by phone or in-person).

- Selection will begin on March 2 and be done on a continuous basis until the program has been filled.
- Applicants will then be offered a seat or waitlisted, based on ranking and seat availability.

Failure to meet anticipated final grades will result in offers being rescinded.

3. Admission or transfer trends or issues

Fall 2017 enrollments:

As of May 2, 2017 we have 96 confirmed applicants for ITSD of which 18 are international students. In addition, we have 211 students waitlisted (20 are international). All current confirmed students have met or exceeded the early admission requirements.

4. Any new transfer agreements – courses, block transfer, or new partner institutions

ITSD graduates are eligible to apply for:

- SAIT - Bachelor of Applied Technology Geographic Information Systems (BGIS)
- Athabasca University
  Bachelor of Science (Post Diploma)
  Bachelor of Science-Computer and Information Systems (Post Diploma)
- University of Lethbridge
  Bachelor of Science in Computer Science (Post-Diploma)
  Bachelor of Management (Post Diploma)
  Note: Co-op options are available
- NAIT
  Bachelor of Applied Information Systems Technology
- Business Academy Aarhus (Denmark)
  Bachelor of Arts, Software Development
  Bachelor of Arts, Innovation and Entrepreneurship
  Bachelor of Arts, Web Development
  Bachelor of Arts, Digital Concept Development
- Griffith University (Australia) - Bachelor of Information Technology
- University of the Fraser Valley – Bachelor of Computer Information Systems
- University of Ontario Institute of Technology
  Information Technology Bridge, Bachelor of Information Technology (Honours)
  Information Technology Bridge (Game Development and Entrepreneurship), Bachelor of Information Technology (Honours)
- Thompson Rivers University
  Bachelor of Technology in Trades and Technology Leadership
  Bachelor of Technology

5. Other updates (new or retiring faculty, new facilities, etc)

SOFTWARE:

The following is a list of software packages currently in use:

Microsoft Office Suite (Alberta Educational License)	Browsers: Firefox, Chrome, Explorer,& Edge
Microsoft Project	Java SDK
VMware	Java EE
Oracle VirtualBox	Oracle 11g Enterprise Edition
Software Ideas Modeler	Oracle 11g Express Edition
SVN by Subversion	MySQL database
Eclipse IDE	Windows 7
NetBeans IDE	Ubuntu Linux
Apache web server	Kali Linux
Payara server	Mobile app development tools
	Assorted other open-source applications/packages/tools as needed…

Additionally, students worked with the following software and hardware for their Capstone projects this past academic year:

Spring boot	jsPDF	Python	Hardware platforms:
Spring MVC	JPA	C and C++	• Raspberry Pi
AngularJS	JFreeChart	MongoDB	• STM 32 Nucleo development board
Bootstrap	Gstreamer	Android developer kit	• Arduino, Ubuntu,
Ajax	Node.js		• hardware modules for example GPS, 9axis Gyroscope, compass, load cells, Altimeter
GSON/JSON	Chart.js	Visual Studio	
Apache Maven	RESTful	Apache Cordova	
	SQL Server		• Android - Near Field Communication (NFC)

PROFESSIONAL DEVELOPMENT FOR INSTRUCTORS:

One instructor attended the DAMA's Data Management Conference at the University of Calgary (April 28-29, 2017)

One instructor will attend session two (of two) of the Char Academy for Leadership and Development in Canmore (June 12-16, 2017)

One instructor has completed the Brightspace Teaching and Learning Certificate program.

Three instructors will be attending the Brightspace Fusion Conference in Las Vegas (July 19-20, 2017)

One instructor will be attending the O'Reilly Fluent Conference: Building a Better Web in San Jose, CA (June 19-22, 2017)

One instructor will be attending the CHI 2017 conference on Human Factors in Computing in Systems in Denver (May 6-11, 2017)

Two instructors will be attending the REcon Conference (computer security) in Montreal (June 16-18, 2017)

One instructor will be auditing a C++ course at the University of Calgary (May 2017)

One of our instructors was off-loaded this past academic year to do curriculum development for our new diploma program, Information Security Systems (ISS), to start fall 2017. In addition to development work the instructor took the following training:
- Ethical Hacker Certification
- Web Application Penetration Testing
- WebSecNinja: Lesser Known WebAttacks
- Ethical Hacking from Scratch to Advanced Technique
- Ethical Hacking for Beginners
- Build an Advanced Keylogger using C++ for Ethical Hacking
- Linux Security and Hardening, The Practical Security Guide
- Learn The Basics of Ethical Hacking and Penetration Testing
- Automated Mobile Application Security Assessment with MobSF
- Cross Site Scripting (XSS) Attacks for Pentesters
- Complete Java Masterclass