Memorandum of Understanding

Between

South Dakota Board of Regents (SDBOR) and Dakota State University (DSU)

and

The Madison Central School District (MCSD)

This Memorandum of Understanding (MOU) sets for the terms and understanding between the SDBOR, DSU and the MCSD to create and operate the Computer Science Academy of the Madison Central School District.

Background

WHEREAS, the Madison Central School District is interested in providing to their students additional and advanced educational programming in cybersecurity, computer science, computer network development and security, and software development; and,

WHEREAS, Dakota State University through its Beacom College of Computer and Cyber Sciences is able to provide such additional and advanced educational programming; and,

WHEREAS, every year in the U.S., 40,000 information security analyst jobs go unfilled, while employers are struggling to fill 200,000 other cybersecurity related roles[1]and where the Enterprise Strategy Group estimated that 51% of organizations report having a significant shortage of cybersecurity skills in 2018, up from 45% in 2017[2]; and,

WHEREAS, the South Dakota Board of Regents, Dakota State University (The Beacom College of Computer and Cyber Sciences) and the Madison Central School District desire to enter into this Memorandum of Understanding setting out the following working arrangements that each of the partners agree are necessary to complete the project.

Project Intent

The Cyber Leadership and Intelligence pilot project (CLIPP) is a three-year project beginning Fall semester 2020 and ending at the conclusion of Spring semester 2023. CLIPP offers to the state of South Dakota, to the students of the Madison Central School District, and to the regental system of higher education in South Dakota three fundamental opportunities: (1) provides university level computer/cyber science courses to qualified high school students, (2) provides to high school students a close look at the fastest growing vocational market in the U.S., and (3) makes use of cross-sectional and longitudinal assessment and evaluation analyses to assist in future decision making about programs like this.

[1] http://digg.com/2018/cyber-security-roles-are-more-in-demand-than-ever; Information Systems Audit and Control Association, ISACA.
[2] https://www.bluefin.com/bluefin-news/shortage-skilled-workers-newest-cybersecurity-threat/

Rationale

Work and workforce development have changed and are still changing. Preparation for work and preparation for productive living has changed and is still changing. It is appropriate for the university and for higher education to become more adaptable to these changes and to examine how to stay relevant. As such, universities must do three important things in the future: (1) we must deliver graduates with 21st century skills, (2) we must collaborate and partner with other institutions (K-12, for example) to facilitate new expressions of work, workforce training and economic development, and (3) we must work effectively across political, geographic, economic and cultural boundaries to nurture vocational and societal relevance in our young people.

Description

This pilot project is the direct result of a strategic coalition of educational innovation called SDPaSS (South Dakota Partnership for Student Success). The SDPaSS coalition came into being a little over one year ago as a regional partnership (DSU, SE Technical Institute, Sioux Falls Public Schools, the SD Department of Labor and Regulation, The Community College for Sioux Falls and several local corporations). This three-year pilot project contains several specific intended outcomes:

1. To bring university level computer and cyber educational opportunities into the MCSD school district;
2. To provide these students with transferable credits and vocationally-ready credentials in computer and cyber science;
3. To investigate and validate methods of course delivery from the university to the high school environment;
4. To investigate best methods for supporting innovative course delivery methods;
5. To provide high quality educational experiences to Madison district students.

Governance

The operational structure includes the (a) SDBOR academic affairs staff and Regents, (b) the SDPaSS leadership Committee (DSU, SE Technical Institute, MCSD, SD Department of Labor and Regulation, and corporate members), (c) the Provost and Beacom College Dean at DSU, (d) the MCSD planning/curriculum committee, and (e) the joint project management committee (District and DSU participants).

Courses to be Delivered

The four-year Plan of Study for the Cyber Leadership and Intelligence-Digital Forensics is appended to this document. By using multiple delivery options (online, blended, on DSU campus) Dakota State will offer to Juniors and Seniors in MCSD the opportunity to take up to 21 credits in Cyber Leadership and Intelligence, Computer Science, and Computer Information Systems. The major courses to be delivered are:

- CLI 101 – Introduction to Cyber Security Leadership (The course will introduce students to concepts, issues, and methods relevant to the Cyber Leadership and Intelligence major.

Students will explore relevant issues and learn how to assess risks, understand threats, and explore fundamental leadership concepts.)

- CSC105 – Introduction to Computers (Overview of computer applications with emphasis on word processing, spreadsheets, database, presentation tools and internet-based applications.)
- CIS 123 – Problem Solving and Programming (An introduction to problem solving and computer programming. Students will learn essential problem-solving techniques. This class uses engaging environments (such as web scripting or visual programming) to introduce programming concepts and logic. Students will create interactive applications to learn techniques on using a computer to solve problems and the fundamental constructs that are used in computer programming.)
- CSC145 – Information Security Fundamentals (Introductory course in which students explore the principles of information assurance, with emphasis on current threats and vulnerabilities to develop an information security plan to mitigate risk. Information security and assurance issues are explored, and a multidisciplinary approach is discussed that examines security policies, models, and mechanisms for confidentiality, integrity, and availability. Theory/Lab.)
- CSC150 – Computer Science I (An introduction to computer programming. Focus on problem solving, algorithm development, design, and programming concepts. Topics include sequence, selection, repetition, functions, and arrays.)
- CSC163 -- Hardware, Virtualization, and Data Communication (This course will provide students with a broad understanding of computer hardware, computer architecture, virtualization, and data communications.)
- CSC250 – Computer Science II (prereq: CSC150) (Includes problem solving, algorithm design, standards of program style, debugging and testing. Extension of the control structures and data structures of the high-level language introduced in CSC 150. Elementary data structures and basic algorithms that include sorting and searching. Topics include more advanced treatment of functions, data types such as arrays and structures, and files.)

*Note: By following the appended Plan of Study for the Cyber Leadership and Intelligence major students could also acquire courses in general education as listed.

Accommodations for the Project

Because of the unique approach of this pilot project, we are making a request for the following accommodations:

1. In addition to CSC105 and CSC150, we are asking that the other courses in this pilot project, in the list above, be approved for dual credit offering.
2. Whether the courses in this pilot project are offered for Dual or Concurrent Enrollment credit, the students will meet all program and admission requirements established in the guidelines of the Academic Affairs Council of the SDBOR. These requirements are in place to ensure that students who enroll are prepared to do college-level work in fields of study used to meet future postsecondary degree requirements.

3. Students enrolled through the High School Dual Credit program receive a reduced tuition rate, which is one-third of the reduced rate of the course as established by the Board of Regents in its Tuition and Fee Schedule. No additional course level fees (e.g., lab fee, program fee, discipline fee, laptop fee, delivery fee, etc.) will be assessed to students enrolled in the HSDC program. The e-text fee may be assessed to those students if this is a requirement for the course. Students shall cover all instructional costs associated with the courses they are enrolled in each semester including but not limited to course materials, texts, and related instructional supplies. The student is ultimately responsible for obtaining all required textbooks and supplies necessary to complete the course.
4. The schedule of courses to be taught will be determined by the joint project management committee (District curriculum and administration experts along with DSU faculty and leadership individuals). This schedule will be produced in a timely manner meeting the scheduling demands of both the District and DSU Beacom College.
5. The joint project management committee has determined that the courses CSC163 and CSC283 will be available to District students for Fall term 2020 and will be taught concurrent enrollment where college credit is earned by a high school student who enrolls in the courses offered through the District and taught by school district personnel (a faculty member has been certified by the Beacom College Dean as qualified to teach the courses; the faculty member has a graduate degree in Computer Science from DSU). Please Note: Approval of an MOU by the Board for this project does not mean that the process for approval of these courses under BOR Policy 2:13 – Third Party Access for Academic Credit and BOR Policy 5:5:3 – Tuition and Fees: Special Course Types is waived.

Administration of Course Offerings

This section of the MOU sets forth the commitments of each party to develop and deliver courses as in-district high school dual credit and/or concurrent credit courses.

In-District Dual Credit

The in-district delivery of courses through the South Dakota High School Dual Credit (HSDC) program established in SDCL 12-28-37.1 allows eligible high school students to complete courses offered by DSU faculty members. Such courses are governed by SDBOR policies and follow established processes for admissions, registration, billing and grade reporting. MCSD agrees to record dual credit coursework on the student's transcript and use it to calculate academic standing.

Authority

1. All current and applicable SDBOR and DSU policies, guidelines and procedures apply to all course offerings and enrollment requirements unless a specific exemption has been approved by the SDBOR.
    a. DSU academic departments, faculty and/or personnel will determine the textbooks and course materials required for each course.
    b. MCSD accepts responsibility for providing appropriate facilities, equipment and

technology to deliver university courses in a manner that meets university standards.

2. Development and coordination of course offerings
    a. DSU staff will serve as the point of contact for communications between the SDBOR system office and the school district regarding course offerings, instructor assignments and schedule of classes.
    b. MCSD will propose course offerings for each semester, with DSU determining the final schedule of course offerings in collaboration with the SDBOR system office.
3. Scheduling and delivery of courses
    a. The calendar and schedule for courses will align with the university calendar for each semester.
    b. Course schedules must meet university accreditation requirements in regard to total hours of class time for the semester, as outlined in SDBOR Policy 2:32, Definition and Assignment of Credit Hours.
    c. All courses will be taught by DSU personnel, to be approved by the university for each course.
4. Enrollment
    a. DSU will determine the maximum/minimum enrollment for each course and the number of course sections offered each semester in compliance with guidelines and policies established by the SDBOR, and with input from MCSD. Current policy suggests that in-district delivery shall only occur for sections with a minimum of 18 students. The school district shall be assessed the equivalent full HSDC tuition rate per student below the 18-student minimum.
5. Tuition and course materials
    a. Applicable tuition rates will be determined by SDBOR and/or DSU policy and legislative requirements, with the MCSD responsible for payment of tuition for its students in university courses offered as part of the in-district delivery.
    b. MCSD or its students will be responsible for the purchase of textbooks and materials required for each course, to be determined by the school district.
6. Registration and advising
    a. DSU staff will provide a student orientation session at the start of each semester in coordination with the MCSD.
    b. All students enrolled in DSU's courses will be assigned an advisor to manage all questions, issues and concerns - students should not rely on MCSD for guidance on any issues involving DSU courses.
    c. Course registration processes will follow SDBOR and DSU requirements and procedures, and DSU staff will process registrations and assist students as needed.
    d. Instructors for DSU courses will utilize DSU's internal early alert system to inform advisors of any academic performance concerns.
    e. DSU staff will coordinate with the appropriate university entities to provide deficiency reports and final grades to the school district.

Concurrent Credit Delivery

Concurrent enrollment courses provide high school students the opportunity to take college-credit bearing courses taught MCSD teachers approved by DSU. The expectation for

coursework completed through concurrent credit opportunities is that the courses cover the material and content at the same level required for the same course offered at DSU, and students are held to the same college-level standards.

1. Authority
    a. All current and applicable SDBOR and DSU policies, guidelines and procedures apply to all course offerings and enrollment requirements unless a specific exemption has been approved by the SDBOR.
2. Development and coordination of course offerings
    a. DSU shall assign a faculty member in the discipline of the course to serve as a mentor for the MCSD's teacher.
    b. DSU shall review the credentials of the assigned instructor to ensure compliance with accreditation standards of the Higher Learning Commission, including ensuring the instructor has a master's degree and a minimum of 18 graduate credit hours in the subject/discipline taught.
    c. DSU faculty shall develop the course syllabus.
3. Scheduling and delivery of courses
    a. Courses shall be taught by instructors employed by MCSD.
    b. DSU shall work with MCSD to ensure that concurrent credit classes contain at least 15 class hours (one hour equals 50 minutes) of class time for each semester credit hour.
    c. The validation of student learning in the concurrent credit course will be through either: A) national AP or CLEP exam instruments; B) an acceptable student evaluation and assessment system developed jointly by the DSU faculty mentor and MCSD high school teacher. If validation occurs under option B, MCSD students are expected to demonstrate the same mastery of the college course as is required of college students who take the course.
4. Enrollment
    a. More than 50% of the students in the course at MCSD shall be enrolled for college credit.
5. Tuition and course materials
    a. The tuition rate for each student enrolled in concurrent credit courses shall be the rate identified as the externally-supported rate in Board of Regents Policy 5:5:3 "Tuition and Fees: Special Course Types" and approved annually by the Board of Regents (For FY19, this rate is $40 per credit hour).
    b. MCSD shall be responsible for the instructional costs associated with delivering the course.
    c. DSU will follow procedures for Board of Regents approval of the externally-supported rate for each individual concurrent credit courses offered at MCSD.

Research and Evaluation

A study of the efficacy of delivery, content and outcomes will be designed and enacted by the university (mostly in year 3 of the pilot project). This will include appropriate IRB protections for human subjects, a research protocol producing multiple measurements of intended outcomes, cross-sectional and longitudinal research designs, and development of potential future applications of the methodology.

Point of Contact for Each Partner

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Madison Central School District
Joel Jorgenson and Adam Shaw
Madison, SD

By: Jim Moran Date: April 7, 2020
Dr. Jim Moran
Dakota State University

By: Joel Jorgenson Date: April 9, 2020
Joel Jorgenson
Madison Central School District

Appendix

B.S. Cyber Leadership and Intelligence, Digital Forensics Specialization

Prefix/Number	Title	Credit Hr.	High School Delivery
General Education		30	
Required Courses		54	
CLI 100	Introduction to Cyber Security Leadership	3	X
CLI 370	Cyber-Ethics	3	
CLI 420	Cyber Leadership		
CLI 492	Internship	3	
CSC 105	Introduction to Computers	3	X
CSC 145	Information Security Fundamentals	3	X
CSC 150 CSC 123	Computer Science I OR Problem Solving & Programming	3	X X
CSC 250 CIS 275	Computer Science II OR Web Application Programming	3	X
CSC 321	Information Security Management	3	
CSC 163	Information Security	3	X
ENGL 212	World Literature II		
GEOG 353	Geography of Religion	3	
HIST 256	World History	3	
POLS 350	International Relations	3	
SOC 370	People and their Cultures	3	
SPCM 410 BADM 360	Organizational Communic OR Organization and Management	3	
Digital Forensics Specialization		18	
CSC 328	Operating Environments	3	
CSC 285	Networking I	3	
CSC 385	Networking II	3	
CSC 388	Computer Forensics Fundamentals	3	
CSC 418	Advanced Computer Forensics	3	
CSC 419	Advanced Windows Forensics	3	
Electives		18	
Total		120	