

Information Technology Advisory Meeting
 Spring 2022 Agenda
 February 11 , 2022 @ 1:00 pm
 MSCTC (M State) Zoom Meeting

Agenda for Spring 2022

<ul style="list-style-type: none"> • MSCTC/M State welcome and updates <ul style="list-style-type: none"> ○ Communications Check (Zoom Audio and Video) 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> ○ Additions/approval of agenda 	
<ul style="list-style-type: none"> ○ Approval of last meeting minutes 	<p>Updated James Title – Bob Motion to approve minutes – Johan – Second – approved minutes</p>
<ul style="list-style-type: none"> ○ Introductions and membership list updates 	<p>Tim Preuss, James Anderson, Tyler Skauge, John Kollman, Jason Peterson, Johan Lucas, Janet Johnson, Jack Wenglewick, Allen Schmidt, Bob Henderson, Charlie Francis, Aaron Dougherty, Bruce Curtis.</p>
<ul style="list-style-type: none"> • Discussion of Industry Trends 	<p>Tim – asking what is important – what to include in curriculum</p>
<ul style="list-style-type: none"> ○ What technologies are you dealing with now? 	<p>Bob Henderson – Mindshift to being an agile environment.</p> <p>Please wait for Windows 11 migration.</p> <p>Allen is running Windows 11 in production. End user does not know any difference. Applications are working on the Windows 11.</p> <p>Apple M1 chip has messed Tim up for virtualization.</p> <p>Bruce - Safely making applications internet-accessible Making applications internet-accessible in a safe manner, without relying on a virtual private network (VPN) or other network tunnel, is a major shift for many agencies that will take significant effort to achieve. As with all large-scale IT modernization efforts, its chances of long- term success will be improved by beginning with an agile approach. To catalyze this work and facilitate early identification of obstacles, each agency must select at least one FISMA Moderate system that requires authentication and is not currently internet-accessible. Then, within a year of the issuance of this memorandum, the agency must take the actions necessary to allow secure, full-featured operation of that system over the internet.</p>
<ul style="list-style-type: none"> ○ What is currently the most useful technology? 	<p>MMR software – managing 15000 iPads. Use Jam to manage 2 or 3 devices for free. Filewave will do Windows, MAC, Chrome – image, push updates, manage.</p> <p>Ability to research and find an answer. Every day is a research project.</p>

	Think from the RMM standpoint – think from the config management – Puppet, Ansible think about letting the tool do the work for them.
<ul style="list-style-type: none"> ○ What is currently the most useless technology? 	Learning how to configure a single Cisco switch.
<ul style="list-style-type: none"> ○ What is the most under hyped technology? 	<p>The need to learn automation tools – Puppet, Ansible</p> <p>For Education – technology for Video switching – switch sources to multiple displays. Plug a decoder for each display and an encoder for every source. A display will be configured to receive one of the multi-cast streams. Multicast traffic in a routed network. Crestron Multicast streaming product</p> <p>https://www.crestron.com/Products/Featured-Solutions/DigitalMedia-NVX-Series</p> <p>https://www.zdnet.com/article/ombs-zero-trust-strategy-government-gets-good/</p>
<ul style="list-style-type: none"> ○ What is the most over hyped technology? 	<p>Move to a “hosted” system and having difficulty maintaining connectivity to the cloud-based services.</p> <p>Cloud services are a hit or a miss. Everyone moving to the cloud but not every product is ready to move to the cloud.</p>
<ul style="list-style-type: none"> ○ What needs to be added to two-year technology degrees? 	<p>Mindset of growth and agility.</p> <p>Automation and Security Tools – IIC or Teraform environment. Mobile in different clouds and switch environments. Not specific here’s how you configure a Cisco switch but how to automate and test in an environment.</p> <p>Government is mandating Zero-Trust environment. Mandating everything be encrypted – even the DNS queries. Cloudflare is behind it and browsers are offering that option.</p> <p>https://www.whitehouse.gov/wp-content/uploads/2022/01/M-22-09.pdf</p>
<ul style="list-style-type: none"> ○ What should be deleted from two-year technology degrees? 	
<ul style="list-style-type: none"> • Program Updates 	
<ul style="list-style-type: none"> ○ Computer Programming 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> ▪ The faculty are looking for class/program suggestions from the group. Consideration is being given to making changes during next school year. 	<p>Jason – Courses proposed for CDM – update pre-req’s to approve by the college system. Reordered classes to enable both a spring and fall entry date. Currently taking in the Advisory Committee suggestions from last fall with proposed updates that have been submitted to CDM. Scripting for Automation is being taught this semester and incorporating GIT into the program.</p> <p>CPTR2255 Software Security and Testing advanced course to replace Mobile App Development course. This is in response to MSUM faculty request for additional skill sets. Mainly a focus on programmatic testing of software vs manually software testing, but</p>

	<p>manual testing will also be included. Test for feature completeness and security completeness.</p> <p>Also talked about a Computer Science 0 course. To address the students who have a harder time grasping programming. Similar to the differentiation between IT and Programming students. Introduce an Intro to Computer Science to help familiarize with programmatic techniques and reducing a problem into smaller problems – repeating the process and building up from there. Programming in a way that you take a specific problem and then have the student break it down into smaller problems. Less computer language oriented and more of a problem-solving method.</p> <p>Also may solve the issue MSUM has that they offer 2 Python courses and need to get that down to 1 course with an Intro Comp Sci 0 course. Option to offer to non-majors. Got good buy-in from administration at MSUM and M State.</p> <p>Add git in the Linux 1 course – feedback was your crazy – What does the advisory committee think – Bob thinks to have Git into the Linux. Using a version control for scripts, config files – starting it early. Introduce code management from beginning to end – no version, no security no r-back. Having a tool to do this is hugely important.</p> <p>Jack – walked into a zero-documentation environment. So a change coming down from the hosting service can break something but there is not document to support changes. Supports version control and programming mentality. Even with graduating from the Cybersecurity spends most of his day reading and analyzing code.</p>
<ul style="list-style-type: none"> ▪ What programming languages and skills are necessary for entry level programmers? 	<p>Need to learn code hygiene – documented notes for what the code does, why changes. Important to read code in any position. Deb emphasizes this early and often. Repository replacing your course management system.</p> <p>Gitlab also adds to the documentation – automation scripts, network diagrams, make sure everyone knows what script was run at what time. So you are able to go back and fix it. Etiquette for version control.</p> <p>Jason asked about ability to move a python script to a bash script. The programming language doesn't matter as long as there is a process and method in place and document what the program does.</p> <p>Focus a dev ops environment into an agile methodology. Need an IT person who is able to perform both Sys Admin and Coding.</p> <p>Jason to re-emphasize Software Security and Testing – believe that while look at manual testing the focus will be on using automated tools. Scaled up to</p>

	<p>implementation. CICD for testing – make them understand running through tests for every deliverable.</p> <p>Writing the tests from the beginning in lieu of adding the testing component at the end.</p> <p>Ability to move a python script to a bash script</p> <p>The group had no objects to the program changes.</p>
<ul style="list-style-type: none"> ○ Cybersecurity 	
<ul style="list-style-type: none"> ▪ What are the knowledge and skills necessary for entry level security employees? 	<p>Important to add courses with ability to read code. Documenting the why changes were made in code.</p> <p>Log Analysis – SIEM tool understanding they can pull data from the “System” and understand the overview of the Network – tie into log analysis.</p> <p>Critical Thinking – specifically the basis for all IT positions. System level troubleshooting – cause – settings button. Implementing 5 – Why’s – Problem solving method asking why. Used in ISO standards – To find the Root Cause and Effect - Agile. Ability to work things back.</p> <p>Allen – hired a new IT person, Allen was working for a personality – someone who can be in front of the board. Business communications skills. Someone who Allen can put in front of a board, staff and explain Cybersecurity training. Big picture thinking. Understand the roles of each individual on a team.</p> <p>Understand how protocols/applications/data are stacked.</p> <p>Entry level cybersecurity – not sure who much direct access into SQL they would have – many programs and applications are using SQL – for run of the mill 1st level NOC guy.</p> <p>If talking a basic familiarity might go better into understand data definition, but not sure it is directly applicable for Cybersecurity.</p> <p>Consider not requiring SQL but include the Fundamentals of IT Security intro course. Focused on generating log files and looking at automated methods for analyzing log files. Also introduce Crypto.</p> <p>Advanced log analysis in lieu of SQ. Using Security Onion – but Allen concluded that with a small business he is not equipped to add security team – is contracting for security team. Working for one company maybe but the cost to set-up security resources and dedicated staff is not something a small org is able to consider.</p> <p>Firewall – server patching – standard security practices. Larger orgs that require 24X7 monitoring – with Cyber if not 4 year cert if they are not very talented individuals they will be doing something else.</p>

	<p>Understand the cost and compliance many of the small to medium enterprise need to meet bare minimum of Cybersecurity. Ability to individuals to watch screens 24X7. Getting in and getting great at Cybersecurity is a need. When compliance starts knocking you need to carry cyber insurance and that requires implementing levels of security.</p> <p>Jason – depends on the size of the company.</p>
<ul style="list-style-type: none"> ▪ How does the group see the cybersecurity degree relationship to other IT degrees? 	<p>Allen expressed that to work in security requires a 4-year degree with higher level of skills.</p> <p>Bob mentioned he is not seeing any Windows in the security program – consider adding a Windows course to the certificate. The NOS and Managing Directory Services are Windows courses.</p> <p>Fundamentals of IT Security – looks at Windows Logs – Group Policy – Auditing – also Audit D on the Linux Side. NMAP scans against Windows, Linus and Game Console.</p>
<ul style="list-style-type: none"> ○ Information Technology – Database Administration 	
<ul style="list-style-type: none"> ▪ The faculty are looking for class/program suggestions from the group. Consideration is being given to making changes during next school year. 	<p>Updated pre-req's to allow moving courses so can accommodate both fall and spring starts.</p> <p>Updated order of the class and Database Report Generation was rewritten to use more Cloud based Datasets. Jason felt R is a good language to get used to pull cloud datasets and create reports.</p> <p>Any discussion about changes, additions – do these changes respond to your Fall feedback? No Comments from the advisory.</p>
<ul style="list-style-type: none"> ▪ Update information did not appear on the brazil web site. 	
<ul style="list-style-type: none"> ▪ What database skills are necessary for entry level database employees? 	<p>Bob asked if any discussion about moving to Power BI or live updated reports on a Dashboard. Jason is making a note of this. Tim mentioned the Database Analytics Business course is using live dashboards – similar to Power BI but not Power BI.</p> <p>Tim asked “Is there a difference between IT use of data analytics and business analytics?” Bob mentioned IT is more involved in getting the connections between the different databases to support Business requests to combine different datasets. IT gets the data to the business leaders in a format they can digest.</p> <p>Tim has 2 Database students in the Enterprise Network course and these students are working in the Google Cloud on different Database platforms.</p> <p>The group had not objects to the program changes.</p>
<ul style="list-style-type: none"> ○ Information Technology – AS 	

<ul style="list-style-type: none"> ▪ Current status update 	<p>No real changes – cycling updates from last year into the other AAS degree programs.</p>
<ul style="list-style-type: none"> ○ CCDC <ul style="list-style-type: none"> ▪ Collegiate Cyber Defense Competition 	<p>This year’s team did a good job – really improved over last year. Bob Henderson was the site judge for this year’s competitors.</p> <p>Tim showed the environment. This group worked with a Pen Tester for 3 hours and met as a Team for 3 weeks to prepare. Placed 2nd or 3rd in injects which are updates and changes to the network.</p> <p>Bob the site judge said it is an interesting premise. Had to fix a lot of things to get to a decent situation. Great experience for the kids. Bob was really excited.</p> <p>Tim mentioned need team members who can see the obvious and also who are able to dig deep to get applications operating.</p>
<ul style="list-style-type: none"> • Program Needs 	
<ul style="list-style-type: none"> ○ Partnerships 	
<ul style="list-style-type: none"> ○ Equipment 	<p>Using old machines in the system maintenance class – loaning the systems to students.</p> <p>Charlie mentioned equipment available.</p> <p>Aaron has a large pile of hard drives that were not used. 500 G -2 ½ “Hard Disk. They have their own NVMEs in there.</p>
<ul style="list-style-type: none"> ○ Recruitment 	
<ul style="list-style-type: none"> ○ This is a call for Internships and entry-level job opportunities for M State students. 	
<ul style="list-style-type: none"> ○ Mock interview interest 	<p>Mock Interviews – Over Zoom – Allen indicated they do both. Writing class – make sure the individual makes sure they know how to address people. Proper etiquette.</p> <p>Mock if doing remote or on-premise – Bob could make himself or staff – do remote and on-prem interviews.</p> <p>Schedule and give warning. Get in front of them early enough to schedule.</p> <p>College is running a survey about doing NSF grants – grant writer needs some information.</p> <p>Traditional survey of what you think of the college.</p>
<ul style="list-style-type: none"> • College update 	<p>Dr. Weber – College update – still rough going with the Covid business. Has been flowing for campus. Enrollments for spring are promising. Only down slightly and we feel it is a big win for us. Down slightly under 1% from last spring. System average was 5-6% down. We have been doing a lot of curriculum updates – coming up with collaborative ways to offer innovative curriculum.</p> <p>At the system level possibility of bringing in Industry certificates for credit. Bring in and help students with</p>

	<p>prior experience get credit for that. It should result in increased opportunities for students.</p> <p>Students seem a little under prepared.</p> <p>We are always looking for partnerships, internships, apprenticeships.</p> <p>What can we do for you?</p> <p>Any questions: Thank you for continuing to hold this meeting even though classes were cancelled today.</p> <p>Thank you for taking time to be with us.</p>
<ul style="list-style-type: none"> • Other 	<p>Jack mentioned working with the Moorhead Career Academy is looking to offer Cybersecurity training in the next few years. There are Deans making the contacts.</p> <p>M State CNA classes have moved over to the Academy.</p> <p>Tim mentioned if Jack has a contact who requests working with Faculty we are happy to talk to them.</p> <p>Dan the IT director is behind working with M State.</p>
<ul style="list-style-type: none"> • Next Meeting Date 	<p>Fall 2022 – Traditionally an Evening meeting – hope to be on campus next time.</p>
	Adjourn -
Actions Items	
Advisory Member Functions (MSCTC Advisory Committee Guide)	
<ul style="list-style-type: none"> • Identify specific subject areas of program inclusion 	
<ul style="list-style-type: none"> • Prioritizing the recommend subject areas 	
<ul style="list-style-type: none"> • Specifying appropriate program content level 	
<ul style="list-style-type: none"> • Reviewing program outcomes on an ongoing basis 	
<ul style="list-style-type: none"> • Assessment of program quality 	
<ul style="list-style-type: none"> • Specifying appropriate foundational skill standards for local needs 	
<ul style="list-style-type: none"> • Identifying general education and related technical skills needed by graduates 	
<ul style="list-style-type: none"> • Recommending equipment to support the program content 	