

MISSION: Provide dynamic learning for living, working and serving. VISION: A success story for every student and stakeholder.

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| ADVISORY COMMITTEE MEETING | | | |
| Advisory Committee: | Computer Programming, Cybersecurity Information Technology-AS and Information Technology Database Administration | | |
| Meeting Date: | February 26, 2020 | Chair: | James Anderson |
| Time: | 1:00 PM | Vice Chair: | None Yet |
| Location: | Zoom | Recorder: | Tim Preuss |
| Committee Members: | James Anderson, Bruce Curtis, Andrew Haugen, Nick Ingolfsland, Pete Lambertz, Johan Lucas, Raliegh Porter, Don Stieha, John Tassava, Patrick Walker, Dr. Borcherding, Dr. Maduko, Deb Flaskerud, Dave Hjalmquist, Janet Johnson, Jason Peterson and Tim Preuss | | |
| Resources: |  | | |

*Important Note: Advisory Committees meet twice per year. While every topic on the agenda template may not be addressed at both meetings, all topics should be addressed over the course of the year.*

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| AGENDA/MINUTES | | |
|  | Agenda | Minutes/Decisions |
| 1. | Welcome and Updates   * Communications Check (Zoom Audio and Video) * Additions/approval of agenda * Approval of last meeting minutes * Introductions and membership list updates | John Tavassa motioned to approve and Deb Flaskerud 2nd to approve the last meeting minutes.  Introductions were made.  Tim and James led the meeting.  Dr. Borcherding and Dr. Maduko represented the M State administration.  Tim explained the Collegiate Cyber Defense Competition and that we have 8 students going to in as a team and four alternates. |
| 2. | Discussion of Industry Trends | Topics discussed   * Virtualization * Move to Cloud, Office 365 * Move carefully * Dealing with remote office place * Remote work impact on student’s job hunt * Work with collaboration tech Teams/Slack business purpose * Need to push adoption of technology to get business value * Security matters * Dealing with constant new software availability/evaluation * Deal with compliance/risk * Move things to cloud * Deal with security * M State entry level security * Everyone needs security awareness * Coding needs security * Connecting/security using multiple cloud providers * More people using online tools * Need ability to understand the business and how tech helps * Remote work is staying * Shortage of technical people * Specialize skills provide opportunities * Shift in how business operates, hire temp specializations * Many COBOL projects to maintain * Administer Cloud base apps rights * Know how phones ring * Cloud base security * Working with security cameras, motion sensors * Know the basics of troubleshooting   Student Attributes/Learning   * Remote Troubleshooting * Remote support software * Need to be flexible/open to other work options * Customer service/telephone etiquette * Need to understand if customer is becoming frustrated * Have good computer skills/need to work with IoT * Farming is evolving, more IoT * Communication between IoT devices * Suggest visit Big Iron Show * NDSU adding more wireless on the farm * Data privacy issues with IoT sensor data * Microsoft is selling time on Quantum Computers * Math requirement to learn quantum * Need to understand rules and programming for quantum   Entry level employee suggestions   * Autism suggestions/web sites * <https://specialisterneusa.com/> * MindShift in Moorhead * <https://www.microsoft.com/en-us/diversity/inside-microsoft/cross-disability/autismhiringcorporate> |
| 3. | Program Updates – Computer Programming | * Planning/Design Phase * Interweave the topics/basic then add specialties * Question about a 2+2 program possibilities – yes considering * Integration work * Need experience in a language/language does not matter * Consider teaching commonly use languages * Cloud created more specialty languages * Tying different systems/programs together * Deal with mass of data / need efficiency * Hire and train to language, must know concepts |
| 4. | Program Updates – Cybersecurity | * Current program overview is given * CCDC overview is given * Question about governance inclusion/why security |
| 5. | Program Updates – Information Technology Database Administration | * Question about statistics in program, use R with examples * PowerBI, tablow, SSRS need the concepts understanding * People are using R * Know the SQL language * Know joins and calls * Database design, deal with the keys * Need a good restore strategy * Deal with Data Lakes * Deal with non-structured databases * How to choose between structure and non-structure * Is data analytics another program? / Current plan to modify a class * Data wrangling (preparing the data for data scientists) more analysis * Some call data analysts – data management |
| 6. | Program Updates – Information Technology - AS | * Currently awaiting articulation process completion * Indicate maintenance class works more with hardware * Wresting on premises dead – answer no * Spending Googles money for student access * On prem will cling for a long time * Identity management is a chapter |
| 7. | Program Needs | * COVID is reducing enrollments * Interest in mock interviews / Need 2-3 week lead times * Is faculty being supported by Marketing departments? – ask by a member of the committee * Does the college have a department to marketing group to market programs? * Student weekly project spin into a blurb, CCDC, robotics club quick blurbs * Advertise at Universities * Advertise to guard members, give a path * Look at time of day offerings * Are you prepared for two year education being free * If free, does that mean all succeed? * Students/graduates need to be hirable * Department will do partnerships * Department will look at old equipment * Interested in internships/employment * Virtual career fair on 3/26 * James nominated to be in the virtual booth |
| 8. | Email comments | Bob Henderson email 2/26/2021. He was unable to attend.   * + What technologies are you dealing with now? We are dealing with a growth in our containerization environment, as well as updating legacy hardware and virtualization stacks to support modern tooling such as Infrastructure as code. We have begun to a reevaluation of all IT processes with a focus of streamlining and automation, leaning towards a Lean and Agile model not just for development, but also for day to day tasks.   + What technologies are in your future?     - Machine Learning Yes. We are using this already with some of our GIS Datalakes to find more patterns.     - Artificial Intelligence Potentially. I see this more of an extension of the above.     - Virtual Reality We are investigating this for training for Fire and PD staff     - Augmented Reality There has been requests for this to implemented in areas around the city by tourism boards. No movement yet, but could see it coming soon.     - Edge Computing Strong interest in this, and we are already using it in many places. By getting some of our compute at the edge, we are better able to integrate with a myriad of sensors, and then use that data to make better decisions without having to worry about getting the data back to a central point via the network from the sensors. This is leading us towards making better decisions in areas such as traffic engineering.     - Is on premises dead? No, and the rumors of it’s death are quite early. I see the Cloud vs On-prem as a cyclical approach, as was Mainframe vs endpoints for compute. Cloud definitely has it’s place, as does on prem. For areas such as SCADA networks, military, R and D and other  high critical nature, on prem will probably always have a presence due to security of being able to airgap. Where I see Cloud really making a stronger push is the smaller one man shops or no-man shops for IT. It’s harder to justify a smaller business to have a technical resource on site that can manage and maintain, for example, a Microsoft AD/Exchange/Fileserver/DNS/DHCP basic stack when they could pay someone less and get those features with an O365 sub.     - Quantum Computing Sadly above anything I’ve looked at.   + Describe the attributes of the ideal entry level employee. A trainable, curious staffer who is ready to learn without believing they already have all of the answers. Someone who can take instruction and criticism, and understands the boundaries they must play in, and respect that. Someone who can think outside of the box and can do more than just follow a step by step guide or a script.   + What elements must be in an IT two year education? A broad base in standard, vendor-agnostic tech stacks such as Networking up to Layer 3, basic hardware, troubleshooting, critical thinking, interpersonal communications (customer service), and intro to a basic scripting language (python, go, powershell) in year one. Year 2, let them focus a bit more into one of the areas mentioned above, with another mandatory class in scripting to continue on that. * Program Updates   + Computer Programming     - The faculty are looking for class/program suggestions from the group. Consideration is being given to making changes during next school year. I would want to see more of a focus on the full SDLC, beyond just the creation of the app. Focus on the full scale of packaging, deployment, and lifecycle management of the app. Containerization, Kubernetes, and CI/CD Pipelines, writing helm charts, and so on.     - What programming languages and skills are necessary for entry level programmers? Languages vary by the job, but it’s honestly the skill to jump in and map a process from start to end, and then be able to communicate that process to non-technical stakeholders.   + Cybersecurity   What are the knowledge and skills necessary for entry level security employees? I believe the best cybersecurity employees are the ones that understand how networking works. So I’d want a baseline, honestly, all of the other majors. I see Sec employees being at a higher bar, as they are the ones who need to watch the other systems. |
| 9. | Other | John Tavassa motioned to adjourn and Don Stieha 2nd to adjourn.  Meeting adjourned at 2:49 pm |
| 10. | Next Meeting Date | TBD for next fall semester, Tim thinks early October |

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| ACTION ITEMS | | | |
|  | Action Item(s) | Owner | Target Date |
| 1. | Provide update on IT-AS articulation status | Tim | Next Meeting |
| 2. | Schedule next meeting | Tim | Early fall |
| 3. |  |  |  |
| 4. |  |  |  |
| 5. |  |  |  |

**REMINDER:** Upload meeting minutes in the Employee Portal>Files and Forms>[Academic](https://employees.minnesota.edu/files/forms/?s=14)