The University Senate of Michigan Technological University
Proposal 62-20

PROPOSAL: Proposed Computing Device Requirement for Students in Michigan Tech Programs (Voting Units: Academic)

Revised following 5-20-2020 meeting in response to comments from the Senate.

Submitted by Deans Council and presented by the Senate Information Technology Committee

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Proposal:

Beginning Fall Semester 2020, Michigan Tech will implement a requirement that all students have a computing device. This is presented as a requirement so that students have full access to financial aid options as it represents an increase in the cost of attendance. In addition, it is recommended that students have regular and reliable internet access for educational use. The currently recommended minimum requirements (listed below; hereafter referred to as **r**equirement(s)) for students in the College of Engineering will be applied for all programs except for those offered through the Department of Visual and Performing Arts and Department of Humanities (which are also listed below). Each college or academic program will provide additional requirements for students in their programs if additional equipment or capacity is needed for the courses in which they will enroll.

Background:

Several schools (MSU, GaTech, VT, etc.) have required students to own a computing device to facilitate learning. This issue has been discussed on a number of occasions at Michigan Tech. Since 2017-2018 laptops have been required for students enrolling in ENG 1101/1102/1001/1100, which amounts to virtually all students pursuing engineering degrees. Based on our experience to date, the laptop requirement for students majoring in engineering and engineering management has been a success. Computing capability has become increasingly available and it now provides essential functionality to all degree programs at Michigan Tech. Besides, computing is so ubiquitous in the careers our students pursue that, as a technological university, we should ensure that they have the tools and skills to maximize their success.

Anticipated Benefits to Students:

This proposal is timely due to the physical distancing of people that is imposed by the COVID-19 pandemic which reduces the capacity in current computer labs and testing facilities. Having students bring computing devices with sufficient functionality to campus will ensure that they have access to the technology they need to be successful while maintaining safe distancing on campus.

Additionally, this requirement will help ensure that all students, remote or in-person, can fully participate in a mixed-mode (combination of in-person and remote-instruction) class and

participate in remote testing. In cases in which part of the class is present and part is attending remotely due to social distancing, having the in-class students use a laptop with a headset works well. IT and the Jackson Center for Teaching and Learning tested several scenarios with smartphones during the spring semester 2020 and found that it was very difficult to get some phones to perform adequately.

Further, instructional personnel who taught during the spring semester 2020 appreciated the use of software as a proctoring tool for remote exams. The tool used by Michigan Tech works very well on a laptop with a camera, but only if all students have the needed equipment. We anticipate that there will be at least some need for remote exams in the fall, and so having the broad capacity to offer proctoring solutions will be helpful to many.

Currently, IT has worked out procedures that allow students to access most lab computers remotely. Owning a computing device enables students to access specialized software often required by their programs without additional (software) cost while satisfying the physical distance requirement that will likely be imposed by the State of Michigan. IT will continue providing robust remote access and assist students in this matter. Also, if a student needs to leave campus for any reason, they will have the computing capacity to continue to participate in classes where a remote or online learning option is available or necessary. Consequently, students are recommended to have regular and reliable internet access off-campus. Software needs for computing devices are largely met through IT for most programs with downloads of needed software once classes have started (at no cost to the student) and by access through remote desktop when needed. Several local companies provide hardware repair options for laptops/tablets/desktops, and both IT and the library have a limited number of short-term loaner machines should the need arise. IT will continue to consult with students for their needed repairs as is currently routinely done. In addition, IT will provide a tested procedure and instructions on how students can remotely access school machines. This would allow students with less capable or incompatible devices to still run specialized software required by programs. IT will also install public outdoor WiFi access points which allow use in parking lots by students who are isolating in the Houghton area and do not have internet access at their residence.

Financial Concerns and Accessibility:

It is noted that this requirement regarding computing device(s) may place an additional financial burden on some students entering Michigan Tech, though most students already own computing devices and will likely not need to buy a new one. Students with financial concerns that arise from this requirement should be directed to Financial Aid for someone who can work with them. Students may contact Financial Aid to inquire about possible financing options. A one-time cost of attendance adjustment may be made to allow students to have increased loan eligibility to assist with covering the computing device expense.

Note that Financial Aid has had very few concerns expressed to them regarding the College of Engineering requirement that was put in place in 2017. They do not anticipate this to be an undue burden for many students but are prepared to try to address any needs that may arise.

Owning a computing device will also leverage additional computing capabilities on campus to augment learning and complete class projects, and reduce the need to access computer labs at inconvenient times (e.g. through remote access), as mentioned before.

Furthermore, an ad-hoc senate committee on Textbook Accessibility is actively working with the administration, student governments, and faculty to bring down the overall cost by adopting e-books, particularly, free open-source textbooks. The broad availability of computing devices among students may facilitate future initiatives like this. In a proposal by the Textbook Accessibility

committee (drafted), some laptops (approximately 40) can be made available to financially disadvantaged students free of charge, thereby improving accessibility to computing devices.

Device Purchase Model:

To implement the computing device requirement, universities across the United States generally adopted one of the three models: (1) renting a device through the university; (2) buying a device through a university contracted vendor; and (3) bringing a device that meets university recommended specifications.

The first option often introduces significant costs to students in four years ($2,500 - $,3000 for four years based on numbers available from Northern Michigan University and Wentworth Institute of University). While the second option could pass some savings to students. However, students are typically locked to more expensive hardware and 3-year warranty and limited to a small number of choices (e.g. University of Miami [Ohio]; $1,300 - $1,500 for laptops meeting our minimum [Windows device] requirements below). The third option allows students to leverage other potential saving opportunities (e.g. wholesale membership, vendor's university purchase program, seasonal discounts, etc.). Generally, Windows laptops meeting the minimum requirements below can be purchased at $700 online. The cost of a Mac device meeting the minimum requirements below is typically uniform for educational institutions or students/teachers ($1,200 - $1,300) given a single vendor.

The third option will be implemented in Fall 2020 and a survey of student's preference will be conducted in Fall 2020 to support decisions moving forward.

Communication Plan:

The requirement for a computing device will be communicated with students immediately in a manner that is sensitive to the potential for increased financial burden, and with direct links to Financial Aid and an FAQ document associated with the initiative. A useful series of FAQs are available at https://www.mtu.edu/admissions/laptop/ and provide answers to additional questions about this computing device requirement. Note that at the time of writing of this proposal, the website focuses on the College of Engineering only, but if this proposal is approved it will be revised to clarify that the **r**equirement will apply to all students and to also list any special or additional requirements added by individual departments or programs. This page will also be updated with information about how students can contact the Student Financial Aid Services Center should they have any questions related to the availability of financial aid if additional aid is needed to support a device purchase.

Minimal Computer Specification Update:

Programs and departments may update their minimal computer specifications by February 1 each year as needed.

Proposed Policy:

Beginning Fall semester 2020, Michigan Tech requires that all students have a computing device that meets the minimum specifications of the program in which they are enrolling. For Fall 2020 these specifications will be available from July 1 and be listed on an admissions website. Specifications will be updated by March 1 of subsequent years, and this will become a requirement for students entering in subsequent years.

Required Minimum Computer Requirements starting in Fall 2020:

For Fall 2020, the requirements for all programs (except those offered through the Departments of Visual and Performing Arts and Humanities) will be those that are in place for students enrolling in Engineering programs that have had and will continue to have, a requirement for a laptop since 2017. These requirements are available at https://www.mtu.edu/admissions/laptop/ and are listed below along with the requirements from the Department of Visual and Performing Arts. The webpage also lists additional recommended specifications that are encouraged.

Processor: Intel i5 (students in the Department of Computer Science may elect an AMD equivalent processor, currently Ryzen 5 or Ryzen 7)

Memory: 8GB RAM

Storage: 500 GB

Other:

- 1TB external drive recommended for backup and additional storage

- HDMI output or HDMI adapter to connect to classroom facilities

- Wireless adapter capable of 802.11ac

- Built-in webcam and microphone, or a combination of USB-connected webcam and headphones with microphone

For the Department of Visual and Performing Arts, the requirements are as posted at http://hub.vpa.mtu.edu/index.php/2019/04/12/student-computer-reccomendation/ and summarized below for this proposal.

- A MacBook Air or MacBook Pro. The MacBook Pro is more powerful and expandable.

- Processor: This should be an i5, i7, or i9.

- Storage:

  ○ This is probably the most important aspect of a computer for our work. An SSD boot drive makes an enormous difference in performance. The internal drive needs to be at least 512GB in size.

  ○ In addition to internal storage, students are encouraged to purchase an external drive as detailed on the web link above.

- Memory (RAM):

- This should be at least 8GB. It is recommended to get as much RAM as possible as it is not upgradable and can make a big difference to the lifespan of a computer.

- Graphics
    - If students are interested in video editing or video game work they should get a computer with a dedicated video card rather than the Intel onboard graphics.

**Humanities Department Laptop Policy
(web location TBD)**

The Humanities Digital Media Zone (120 Walker) includes a Mac computer media studio for open lab work and Humanities media production classes. Humanities majors or students who are pursuing a Media Production Minor and expect to take several media production courses may want to consider purchasing a Mac laptop if they want to work seamlessly between the HDMZ computer lab and their own computer. The primary software for our media courses is Adobe Creative Cloud, which can be used on either a Mac or PC that meets the appropriate specifications.

The specifications below should apply to both Windows and MacOS machines.

	Minimum	Recommended
Processor	i5	i7, i9
Storage	At least 512 GB internal storage	Additional 500 GB external hard drive (7200 rpm or SS)
Memory	8 GB	16GB (or more if you plan to work with video)
Graphics	2 GB VPU GRAM*	4 GB VPU GRAM*
	* The standard Mac Graphics card should suffice. For more information on Graphics Cards for video editing https://helpx.adobe.com/premiere-pro/system-requirements.html#gpu-acceleration	

A MacBook Air will work for general media production, but if you plan to work with video, the MacBook Pro is more powerful, has more ports for external devices, and is more expandable. The 16" MacBook Pro provides options for more VRAM.