**Project List**
**SW Engineering Section 1 (3:30)**

| Project | Description | Team | Sprint Slot | Sponsor |
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| **Pedagogical Support** | A website where students upload screenshots for their projects in academic courses requires a revamped architecture to remediate features that need improvement and the addition of several new features. | Slow Lorises | **M 3:30** | Rowan University: Professor Provine |
| **Mitigations Repository** | Once identified, a cybersecurity risk requires an appropriate response. The implementation of a countermeasure or security control to reduce the risk to an acceptable level is known as risk mitigation, one of the four responses to risk. Security controls fall into five types: directive, preventative, detective, corrective, and recovery. Additionally, controls organize into three categories: administrative, physical, or technical. Implementation of specific controls may result in the reduction of multiple risks. Mitigation may also require the repeated application or slight modification to particular machines in a system.<br><br>A software tool could offer a means to organize mitigation options and procedures while also tracking derivations. First, there needs to be a taxonomy for security controls aligned to existing frameworks for classifying threats (e.g., NSA's Threat Framework). The software tool should allow for the input of security controls with data such as procedures, applicable system or software, and vulnerabilities addressed. The software tool should then allow for the querying of the database for known mitigation options and creating derivations (a.k.a forks). The software tool is akin to a GitHub for mitigations. | | R 3:30 | Lockheed Martin:<br><br>Andrew Resch<br>andrew.s.resch@lmco.com<br><br>Jon Munilla<br>jonathan.munilla@lmco.com |
| **Notification App** | **Problem Statement**<br>Students receive too much communication, including too much communication from their university. It's difficult and time-consuming for students to distinguish between what deserves their attention and what doesn't. Because most of the communication does not deserve their attention, students sometimes miss the few communications that do.<br>Universities are composed of many units that function almost completely independently. Different units have different priorities and therefore different communications they deem important. Universities as a whole have no way to get critical information to the students who need it.<br>The conditions of the universities on the sending end and students on the receiving end means all channels of communication too often fail. This means students often don't read vital information, including financial aid and academic requirements. Too often, this leads to significant negative outcomes for students.<br>Solution<br>**University Curation**<br>A notification app will mitigate most of the problems listed above. The application will use data from the university's ERP (which at Rowan University is Banner) and will be curated by a communication panel that includes university students and administrators.<br>Student Control<br>The default settings will give students only critical communications, meaning they relate specifically to the individual student and require an action by that student. Critical | | W 3:30 | Rowan: Jeff Bonfield |

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| | communications might include messages that affect the specific student's enrollment, such as billing, grades, etc.  Students will also be able to opt in to other communication that aren't critical but that the student finds interesting or useful.<br>Students will be able to snooze or add notifications to their calendar.  The notifications will also link to the relevant information or webpage, where the student can act on the notice. | | | |
| **Course Scheduler** | There is a need to develop a program that will help with automating parts of the scheduling process. Specifically, the program should do the following:<br>• Maintain a database of CS courses<br>• Create a spreadsheet that allows selecting and placing courses into specific timeslots of specific classrooms in a given spreadsheet<br>• Converts intermediate schedule representation (i.e., course placement into specific timeslots and classrooms) into format required by the Scheduling department<br>• Verify correctness of the created scheduled by checking for time/room conflicts, faculty load, faculty schedule (e.g., no teaching two classes at the same time), etc.<br>• Generate scheduling reports that displays weekly schedule for each faculty with their corresponding loads, BA in C&I schedule, BS in CS schedule, MS in CS schedule, MS in DA schedule, etc.<br>The program will have to work with MS Excel. | Ducks | W 4:00 | Rowan: Dr. VH |
| **gMock Test Framework Project** | The students will develop a C++ application that will utilize the gMock unit test framework as a part of the development process. The application will be simple in nature. We suggest a scheduler application; one that might be used for scheduling classes or vacation rentals. The idea is to create an application that will have many possible test cases. The team will employ Google's framework for writing and using C++ mock classes. It will help them derive better designs and write better tests. | Cuttlefish | M 4:00 | ASRC: Dylan Shapiro, Joe Hammer<br>DShapiro@asrcfederal.com<br>JHammer@asrcfederal.com |