

# ENGI 9837 - Project Design, v1.0

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For the first assignment, each team is responsible for the design of their module in their given project (OptiMUN Plus, MUNtrobus, MUNhouse, or MUNNNetwork).

The design of the module should also include a suite of tests to be written to thoroughly test the given module. Because the project specification asks for a web-based application with services, it is natural to use a RESTful API with microservices. You can see more details about such a design and architecture at

<https://blog.dreamfactory.com/restful-api-and-microservices-the-differences-and-how-they-work-together/>, <https://medium.com/the-software-design-blog/an-introduction-to-rest-apis-and-microservices-ea9477699b73>, OR <https://learn.microsoft.com/en-us/azure/architecture/microservices/design/interservice-communication>.

You may also use a monolithic architecture initially, but then it should be converted to a microservice-based architecture for the final product. For each module/microservice, you may produce UML class diagrams and use case diagrams. The tests should be described in detail and preferably there should be some code/pseudo-code written with e.g., JUnit.

In the scrums to be held, the team owners/leaders should hold scrums with other team members to ensure that there is as little coupling as possible between their modules, as eventually (or even initially) the design will be implemented in a microservices-based architecture. As such, each team should also design messages to be passed between modules. Note that messages will have tags which will be detected by other modules to decide whether or not they should be handled by each of those other modules. At the current stage, no implementation is necessary, but just a design for which implementation will begin for the next assignment. Each team is to submit a report detailing their design. Though there are no page-length requirements for the reports, they should be thorough and explain the reasoning for any design choices made in that team's design. Each team should also detail the contributions of each team member in the report and there will be opportunity for individual team members to evaluate others in their team in terms of participation and contribution to the design.