



MODULE 02 – SCHEDULE

Part A – Schedule

1. Schedule Format Criteria:
 - a. On one of the three programs listed below you will create a schedule, complete with a continuous logical flow of critical path activities from Notice to Proceed, Permit Releases, Subcontractor Buyout, Procurement, Submittals, Fabrication and Delivery lead times, Construction, Punchlist and Completion - Project, SmartSheet, P6.
 - b. At a minimum, show the following column headers: Activity Description/Task Name, Duration, Start, Finish, Total Float.
 - i. In addition, clearly show predecessors and successors in Gantt or column form.
 - c. Activity Count: No less than 150 activities.
 - d. Organize your activities so they are easy to read, activities are grouped intuitively, and the schedule “flows” well.
2. Contractual Criteria:
 - a. Notice to Proceed Pre-Construction: August 5, 2019
 - i. All pre-construction activities will need to have a submission, review, and approval process.
 - b. Notice to Proceed Construction (NTP): November 25, 2019
 - i. NTP authorizes contractor mobilization.
 - c. Substantial Completion: To be determined by you
 - i. Substantial Completion is defined as “the building can be used for its intended purpose.” In order to satisfy this requirement, all construction activities shall be substantially complete, the building systems must be operational, all code required inspections must be complete, and a Temporary Certificate of Occupancy must be received from the State Fire Marshal to allow occupancy of the building for its intended purpose.
 - d. The schedule should account for all major US holidays.
 - e. The project is located on an active campus. Material delivery delays, construction time constraints, and overall campus impact should be analyzed and accounted for in the activity durations.
3. Work Breakdown Structure:
 - a. At a minimum, the below milestones and activities need to be included in your schedule – add any activities you deem necessary.
 - b. Overall Milestones:
 - i. Notice to Proceed Pre-Construction (August 5, 2019)



- ii. Notice to Proceed Construction (November 25, 2019)
- iii. Substantial Completion (TBD)
- c. Preconstruction:
 - i. Bid Packages and Buyout
 - 1. Bid Package #1 – Structural Steel, Elevators, Exterior Skin System
 - 2. Bid Package #2 – Cold Shell/MEP
 - 3. Bid Package #3 – Interior Build Out
 - ii. Submittal Preparation and Review
 - 1. Structural Steel
 - 2. Elevators
 - 3. Exterior Skin
 - 4. Solar Panels
 - 5. Mechanical Equipment
 - 6. Stairs
 - 7. Fire Alarm
 - 8. Fire Sprinkler
 - 9. Doors, Frames and Hardware
 - iii. Procurement of Material
 - 1. Structural Steel
 - 2. Elevators
 - 3. Exterior Skin
 - 4. Solar Panels
 - 5. Mechanical Equipment
 - 6. Stairs
 - 7. Doors, Frames and Hardware
- d. Construction:
 - i. Mobilization/Make Ready
 - ii. Site Work
 - iii. Structure
 - iv. Framing/Rough In
 - v. Finishes
 - vi. Exterior Skin
 - vii. MEP Systems Startup, Testing and Commissioning
 - viii. Fire Life Safety
 - ix. Substantial Completion



Part B – ‘Time Warp’ Scenario

1. Time warp, DPR has been awarded the project and your team is now close to 50% completion. The owner has requested you track the progress of the project on the plans/elevations.
 - a. Deliverable:
 - i. Using a program of your choosing, highlight a set of floor plans/elevations showing which activities have been completed, which activities are in progress and which activities have not yet begun. Clearly provide the date at which you are approximately 50% complete.
 - ii. Current site logistics plan as of 50% complete with the overall project.
 - iii. See example included on the flash drive.

Part C – Commissioning Activity

1. The owners have established that commissioning is a very important feature to them. Being that this is a critical process for any successful project, provide a detailed commissioning schedule for the owner to review (hint: use your start date of commissioning activities to drive this schedule).
 - a. Activities to assist in the Equipment Testing & Commissioning schedule buildout:
 - i. Mechanical
 - ii. Electrical and Lighting
 - iii. Plumbing
 - iv. Low Voltage, Telephone and Data
 - v. Fire Protection and Fire Alarm
 - b. Specific line items to assist in the schedule build out:
 - i. Final Equipment Connections/Terminations
 - ii. Startup “Equipment” (Insert the equipment name)
 - iii. Test and Balance Air
 - iv. Space Complete Buildout
 - v. Set/Install “Equipment” (Insert the specific equipment name)
 - vi. Owner Functional Testing & Sign-Off
 - vii. Fire Marshal Testing & Inspection
 - viii. Energize Equipment
 - ix. Program System
 - x. Pre-functional Testing
 - xi. Chlorinate “System” (Insert specific system name)
 - xii. Fire Marshal Final Inspection & Sign-off
 - xiii. Equipment & Installation Code Inspections



- xiv. Flush "System" (Insert specific system name)
- c. Note: You only need to specify the key/large pieces of equipment (2 AHUs, Solar Panels, 3 Boilers)

Part D – Schedule Questionnaire

Objective: The intent of the questions below are to test your knowledge and spark ideas for creating your schedule.

1. What 'make ready' (the work you must do in order to build the actual building) construction projects are shown on your schedule in order to not impact current campus occupants while construction is ongoing?
2. Fire alarm and fire sprinkler is a design build system by your subcontractor. How early in the project should they be brought on board and why?
3. In order to bring the end date of the project in, our owner's typically ask for ways to save time out of our schedule. Name one way to decrease the overall length of the construction schedule before construction starts and another that could take place once construction begins. Both answers need to carry the least amount of cost impact to the project.
4. What are your critical items to achieve building dry in? (List 5)
5. Deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the building official within a specified period. What are the deferred submittals required for this project?
6. What scopes of work can be overlapped or staggered in the construction schedule and why? (List 3)
7. Based upon your previous answer, which subcontractors would you pay overtime to save time out of your schedule?
8. Explain the ways that self-perform work can decrease days in your schedule.



Required Deliverables:

1. Complete Schedule
 - a. A list of your assumptions you made throughout the schedule creation process
2. Critical Path Schedule
3. Time Warp Scenario
4. Commissioning Activity
5. Schedule Questionnaire