



# UH-Fluor Conference, Spring 2021

## Construction-Driven Execution Design Challenge Overview: Fast Track-tor

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## 1. Introduction

This year's Construction-Driven Execution Challenge for Spring 2021 is created to replicate the efforts that Fluor is tasked with for each of the pipeline projects. This design challenge has been built so that any level of education or knowledge base can participate since it intuitively ties into teamwork and how each decision specifically influences the resulting execution of the work.

The Design Challenge (Fast Track-Tor) is designed to give students experience in planning for construction by introducing them to concepts related to constructability, construction work packs, and supply chain as they would relate to pipeline projects.

The project will be a fictional project where the students will be tasked with determining the shortest schedule for construction by working within a given budget. The students will be provided the documents that provide instructions as well as information on the project where they will utilize that information to populate a cost/schedule spreadsheet to arrive at their solutions.

Each team can have 2 or 3 members per team and select a unique team name for registration and submissions in the portal.

## 2. What are critical dates for Design Challenge?

The following is the schedule for engagement for the students:

- **Jan 19<sup>th</sup>:** Instructions and guidelines of the Design Challenge will be posted on portal.
- **Jan 24<sup>th</sup>:** The actual challenge will be published on portal.
- **Jan 29<sup>th</sup>:** Information Session #1 – Overview of Challenge.
- **Feb 5<sup>th</sup>:** Information Session #2 – Workspace and Equipment Selection.
- **Feb 19<sup>th</sup>:** Information Session #3 – Tie-ins and Schedule.
- **Mar 5<sup>th</sup>:** Information Session #4 – Construction Work Packs and Commercial
- **Mar 15-26<sup>th</sup>:** Portal for submissions opens.
- **Mar 26<sup>th</sup>:** Challenge is due for Evaluation by Fluor. (11:59 pm Portal Closes)
- **Mar 27-Apr 2<sup>nd</sup>:** Evaluations of submissions by Conference Design Team.
- **Apr 2<sup>nd</sup>:** Results published on the conference website and Top 5 teams will be notified via email.
- **Apr 9<sup>th</sup>:** Top 5 teams will make presentations, interviews by the Design challenge panel and top 3 will be picked. Results will be published on the conference website and notifications of which the top 3 teams are will be sent via email.
- **Apr 16<sup>th</sup> (Day of the Conference!):** Top-three teams and announcement

Each of the information sessions and communications will be done through Fluor's WebEx system. The portal will be housed within the University of Houston Website.



### 3. Work Planning and Construction Execution

The construction of the pipeline system will be broken down into 5 main components, each of which have their own unique parameters that can be adjusted to optimize the schedule and budget. Each of the categories is covered in more detail in the later sections of this document.

1. Selection of land (ROW) allocated for temporary construction workspace
2. Selection of additional construction equipment to support the project
3. Identification of tie-in crew requirements based on obstacles being crossed, facilities to tie into, fitting quantity, and daily progress.
4. Selection of vendors to supply the materials to support the schedule and budget
5. Fabrication yard productivity based on availability of materials and productivity of the crew

The teams will have to complete the following tasks:

- A. Written Design Narrative (Template Provided)
- B. Complete the spreadsheet's entries for "Team Input" in green in its entirety. Be sure to validate that you are under budget for your solution. Optimize the schedule to be the shortest duration.
- C. Markup the alignment sheets to reflect the workspace limitations.
- D. Construction Work Packs with selected vendors to support schedule and budget
- E. Build your own schedule that reflects the following:
  - a. Kick-off of project
  - b. Laydown Yard Establishment
  - c. Crews 1-18 activity from mobilization to demobilization
  - d. Construction Work Package assembly

Once your team has completed the requirements, you will submit your proposal through the University of Houston web site that will contain the following information:

1. Design Narrative that describes your design process and innovation idea in the template provided
2. Marked up alignment sheets showing the temporary workspace
3. Cost and Schedule Estimating Spreadsheet that is populated with your data
4. Schedule of the project execution that your team has built



## 4. Evaluations

Team's proposal will be evaluated with the following process:

1. The Design Challenge Committee will rank the Teams Based on the Shortest Schedule Duration.
2. The Design Challenge Team will evaluate the Technical contents of the Design Narrative that describes your process, your schedule that you developed, the spreadsheet provided, and the marked up alignment sheets.
3. The Design Challenge Committee will administer any penalties and provide final tally of Schedule and notify the top 5 Teams of their success with further instructions.

The scoring will be broken down in the following:

- Schedule after penalties are applied – 70%
  - All teams will get % of points up to 70 based on shortest schedule. The team with shortest schedule will receive 70 points.
- Design Narrative Contents – 20%
  - Scored by Design Committee for each section for technical content and thoroughness of addressing the subject
- Presentation – 10% (Top 5 teams will participate)
  - Scored based on presentation preparation and content
  - Design Challenge committee members will help the teams with preparation