ACED Conference November 2018

Project Based Learning to Prepare Graduates for Industry (Swings & Roundabouts)

Nick Russell

THOMASONS

ACED Conference November 2018

Work at Surrey University and Thomasons

Surrey moving away from lectures on design codes and concentrating more on conceptual design.

Thomasons take on between 4 and 6 work experience students from local schools (year 11) or undergraduates for between a week and a year.

THOMASONS

ACED Conference November 2018

Early year work at Surrey based on simple structures

Bus stops

Fair ground equipment.

Thomasons work varies but the car-park example is illustrative.

THOMASONS

Swings

Engineering Considerations

- Stability
- Load Cases
- Dynamics
- Choice of materials

Bus stops 1

Engineering considerations

- Structural form
- Glazing
- Stability
- Comfort
- Safety
- Drainage
- loading

Bus Stops 2

Bus Stops 3

- Stability

Bus Stops 4

- Stability
- Necessity

Bus Stops 5

Roundabouts

Engineering Considerations

- Forces
- Health & Safety
- Construction

Leisure Parks

Engineering Considerations

- Dynamics
- Construction
- Temporary structure
- Fatigue

Leisure Parks

- Construction
- Water Requirements
- Materials
- Structure

Larger Projects

Bringing things together…

- University Campus
- Guildford Station

Simple Statics 1

Simple Statics 2

A three-legged stool, one of the few situations that engineers can analyse with certainty; and a four-legged stool, one of the innumerable that we cannot (after Burland[3.49])

Simple Statics 3

Computers do not absolve design engineers from considering the most critical loading conditions

Thomasons – Car Parks

Year 11 and undergraduates

- Homework & planning
- Site visit
- Area and number of cars
- 50% is for parking
- Prepare a structural scheme
- Draw it
- Cost it
- Present it
- Wednesday is for a site visit and a change in brief

ACED Conference November 2018

Project Based Learning to Prepare Graduates for Industry

Thank you for Listening.

Nick Russell

THOMASONS