02/06: Design Day and the Design Day Booklet

The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2020
Design Day Booklet

• Professional Publication
  ▪ Corporate Relations
  ▪ Alumni Relations
  ▪ Recruiting
  ▪ Keepsake for You

• Contents
  ▪ Schedule of Events
  ▪ Project Descriptions
Team Project Page

• Template Distributed by Dr. D.
  ▪ Sponsor Name
  ▪ Sponsor Logo
  ▪ Project Title
  ▪ MSU Team Photo
  ▪ MSU Team Members’ Names
  ▪ Corporate Sponsors’ Names
  ▪ Headers and Footers
  ▪ Posted On Downloads Page

• Template Completed by Team
  ▪ Project Description
  ▪ Artwork
  ▪ Use Microsoft Windows Version of Word
Team’s Job

- Read instructions carefully.
- Check everything.
- Use Microsoft Windows version of Word.
- Read instructions carefully.
- Write project description.
- Read instructions carefully.
- Provide artwork.
- Read instructions carefully.
- Update project description and artwork.
- Read instructions carefully.
- Check everything 100 times.
- Read instructions carefully.
Project Description

• Read instructions **carefully**.
• Newspaper / Magazine Style
• Target General Public
• Do NOT Start “Our Project is…”
• Use present tense throughout.
• Write as though your project is complete.
• Fill the entire textbox, but no more.
• See Examples
  - [The Capstone Experience](#) Booklet
  - Previous Design Day Booklets ([Design Day > Booklet](#))
  - [MSU Men’s Basketball](#)
Project Description

• Beginning
  ▪ Sponsor Overview
  ▪ 2 to 3 Lines
  ▪ See Previous Examples

• Middle
  ▪ The Problem
  ▪ Your Solution

• End
  ▪ Technical Jargon
  ▪ 2 to 3 Lines
  ▪ See Previous Examples
Example Project Description: Spartan Basketball Player Timer

NCAA Division I basketball is very competitive. Although it may not be apparent to the casual observer, every detail of each game is carefully planned and scripted.

One aspect of a game plan is that of playing times. For each player, the coaches determine target times for how long he can play at a stretch, how long he needs to rest before playing again, and the total amount of time he should play in a game.

Developed with Coach Tom Izzo, our Spartan Basketball Player Timer is used by the basketball staff on the bench during the game.

When a player enters the game, his playing time is displayed with a solid green background. When his target playing time goes under two minutes, it is displayed in yellow. When the time goes below zero, it is displayed in red.

The color coding of times provides visual cues that can be seen by the coaches at a distance. If there are many yellow or red boxes, the coaches begin to plan substitutions.

A game summary for all the players can be displayed at any time whether the game clock is running or stopped.

Our software runs on a Microsoft Windows Tablet PC about the size of a traditional clipboard only slightly thicker. With no mouse or keyboard, all input is done with a pen.

_Spartan Basketball Player Time_ is written in Visual Basic. The underlying database is Microsoft Access.
Artwork

• Read instructions **carefully**.
• Take 2 to 3 screenshot(s) of working software.
  ▪ Use eye-catching examples.
  ▪ Avoid boring or trivial things.
    o Splash Screens
    o Login Screens
• Fill up the **entire** whitespace.
• Overlap artwork if necessary.
• Include “framing.”
  ▪ Browser
  ▪ iPhone, iPad
  ▪ Android Phone or Tablet
  ▪ NOT Laptop or Desktop
Artwork

• Read instructions carefully.
• Add borders if necessary.
  ▪ If Blends Into White Background
  ▪ Create a single PNG using PowerPoint.
  ▪ Read Instructions
• Capture and provide very high-resolution images.
• Preserve aspect ratios.
• Crop to eliminate transparent “borders.”
• Eliminate all surrounding “whitespace.”
• Use paint.net.
• See examples.
  ▪ The Capstone Experience Booklets
  ▪ Design Day Artwork Feedback, Fall 2019
  ▪ Previous Design Day Booklets (Design Day > Booklet)
  ▪ MSU Men’s Basketball
Amazon
AVAST: Amazon Video And Shopping Technology

Founded in 1994 as an online bookstore, Amazon is the largest online retailer in the world. In addition to retail, Amazon offers services in cloud infrastructure through Amazon Web Services, and audio and video streaming through Amazon Music and Prime Video.

According to a recent study, 80% of internet usage will be people watching online videos by the year 2020. This presents a significant opportunity for all online retailers.

Our AVAST (Amazon Video And Shopping Technology) platform leverages the growth in online video streaming by providing users with an easy way to purchase products of interest that they see in the videos they are watching.

Using AVAST, an Amazon customer can stream videos from content providers such as YouTube, and their favorite TV networks.

When a user is watching a video, AVAST analyzes it to find items of potential interest to the viewer. As the video plays, related Amazon products are displayed alongside the video as illustrated in the examples at the right.

For each item, AVAST displays a product description, pictures and ratings. A viewer can easily purchase any product simply by clicking on the conveniently provided link to Amazon.

The frontend of AVAST (Amazon Video And Shopping Technology) is built using Angular 6, while the backend is implemented using PHP Larvlar. In addition, several Amazon Web Services are used including Redshift to analyze videos and EC2 to host the AVAST website.

Michigan State University Team Members (left to right):
Linhshen Fang
Noah Ziegler, China
Dan Nwosu
Oak Park, Michigan
Patrick McCormick
Northville, Michigan
Ian McGrigor
Chesterfield, Michigan
Han Wang
Novi, Michigan

Amazon Project Sponsors:
Garrett Gaw
Detroit, Michigan
Dennis Gekhard
Detroit, Michigan
Kyle Hall
Detroit, Michigan
Pete Hefley
Detroit, Michigan
Aptiv is a global technology company that is transforming mobility with its portfolio of safe, secure, and connected solutions for its customers.

As a leader in autonomous vehicle development, Aptiv maintains an extensive test fleet of autonomous vehicles, which must be managed and monitored. Our Autonomous Vehicle Fleet Connectivity App provides connectivity to Aptiv’s autonomous test fleet, which operates across the U.S., Europe, and Asia, and includes various vehicles with software for every level of autonomy.

Among other features, our system provides scheduling of test vehicles. After logging in, Aptiv engineers see a calendar view of the entire fleet from which they can select a particular day to view a list of available vehicles. Once a vehicle is selected, our app displays a complete set of information about it including its past usage, reservations, and diagnostic information.

In addition to checking availability of vehicles based on dates, our app provides an advanced search to narrow the scope based on things like type of vehicle, location of vehicle, and level of autonomy.

The “My Reservations” tab shows a user’s upcoming vehicle reservations as well as enabling them to modify and cancel reservations.

Our Autonomous Vehicle Fleet Connectivity App is written using the Angular web framework, obtaining information from Aptiv’s native servers. Communications are implemented using Microsoft Azure Services.

Michigan State University
Team Members (left to right):

Alex Patton
Horace, Michigan

Drew Gipe
Dexter, Michigan

Emilio Castillo
Lansing, Michigan

Klint Karcher
Lansing, Michigan

Chad Knauss
Novi, Michigan

Aptiv
Project Sponsor:

Chris Lusseau
Topic, Michigan

Joe Lynn
Topic, Michigan

Boni Magale
Topic, Michigan

Jim Gusewberry
Topic, Michigan
Auto-Owners Insurance

Jeffrey: Virtual Insurance Claim Advisor

Auto-Owners Insurance is a Fortune 500 company that provides automotive, home, life and commercial insurance. Headquartered in Lansing, Michigan, Auto-Owners is represented by over 44,000 licensed insurance agents across 28 states, and provides insurance to nearly 3 million policyholders.

Every day, hundreds of insurance claims are filed with Auto-Owners through its independent agents. This process can be tedious for both policyholders and agents.

Our Jeffrey Virtual Insurance Claim Advisor system is a virtual claim assistant that automates the entire claim reporting process. Our mobile app, shown at the right, enables both agents and policyholders to file a claim quickly and efficiently.

Jeffrey engages in a dialogue with policyholders and agents to gather information required to file their claim through natural conversation. If necessary, Jeffrey prompts users to take photos, record videos, or attach documents relevant to their claim.

After completing a dialogue with a user, Jeffrey automatically gathers the appropriate claim information and submits it to Auto-Owners.

Our companion web app enables agents and Auto-Owners associates to find and review claim information that is submitted through the mobile application.

Our Jeffrey Virtual Insurance Claim Advisor system features natural language processing, which is implemented using Google’s Dialogflow. A custom REST API, written in Kotlin, handles interactions between the applications and our MySQL database. Our web application is built using the React Javascript framework.

Michigan State University Team Members (left to right):
Alex Klinger
Marshall, Michigan

Caroline Wohlhuter
Chicago, Michigan

Nalisha Bivji
Novi, Michigan

Michael Dickmann
Novi, Michigan

Auto-Owners Project Sponsors:
Ross Hecker
Lansing, Michigan

Scott Lake
Lansing, Michigan

Jim Scheunemacher
Lansing, Michigan
Artwork Example

The Capstone Experience

[4 of 5]
The Capstone Experience

MSU Federal Credit Union
Banking with Amazon’s Alexa and Apple’s Siri

Founded in 1937, Michigan State University Federal Credit Union offers financial services to Michigan State University and Oakland University faculty, staff, students, alumni association members and their families. With 28,000 members and over $1.3 billion in assets, MSUFCU is the largest university-based credit union in the world.

MSUFCU currently offers mobile banking apps on both Apple (iOS) and Google Android devices for members to access their funds and perform banking transactions at any time.

Our Banking with Amazon’s Alexa and Apple’s Siri project makes use of MSUFCU’s technological edge by expanding their banking offerings to voice-controlled smart devices such as Amazon Alexa-enabled devices, Apple Watch and Android Wear.

Voice-controlled technologies give MSUFCU members new ways to interact with their accounts, including accessing their account balance, transferring money and obtaining information about recent transactions. Members can request other information about MSUFCU such as branch hours, current loan rates and the location of the nearest ATM or Branch.

Our companion administrative web portal enables MSUFCU staff to manage the available information and services offered by these voice technologies. Frequently asked questions can be added to the apps in minutes to improve the user experience.

The Alexa skill is written in Python, Apple Watch in Swift and Android Wear in Java. All three connect to MSUFCU’s database through JSON. The administrative web portal is written in PHP.

Michigan State University
Team Members (left to right)

Steven Jorgenson
Sonora, Michigan

Kieran Hall
Ann Arbor, Michigan

Will Rudnick
Chicago, Illinois

Ethan Boyd
Sailor, Michigan

Catherine Gere
Sharon, Michigan

MSUFCU Project Sponsors

Samantha Ambrose
East Lansing, Michigan

April Clowers
East Lansing, Michigan

Emily Foster
East Lansing, Michigan

Jadie Lochard
East Lansing, Michigan

Andy Lynch
East Lansing, Michigan

Sam Mazure
East Lansing, Michigan

Andy Wardwell
East Lansing, Michigan
Michigan State University Men’s Basketball
Spartan Basketball Player Timer

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Spartan Basketball Player Timer is written in Visual Basic. The underlying database is Microsoft Access.

Michigan State University
Team Members
Wayne Dyksen
North Holston, New Jersey
Wayne Dyksen
Grand Rapids, Michigan
Wayne Dyksen
West Lafayette, Indiana
Wayne Dyksen
East Lansing, Michigan

Team Michigan State University
Project Sponsors
Richard Bader
East Lansing, Michigan
Jim Boylen
East Lansing, Michigan
Tom Izzo
East Lansing, Michigan
Mark Montgomery
East Lansing, Michigan
Desmon Stephens
East Lansing, Michigan
The DD Booklet Production Process

Zip Folders to Teams

Zip Folders From Teams

Edit Artwork

Edit Project Descriptions

Merge Edits

Zip Folders To Designer
United Airlines
Training Scheduling and Optimization System II

1. Template
From Dr. D.
To Team

To insert your project description here. Read the Design Day Booklet Page Instructions thoroughly, over and over and over and over and over and over.

For examples, see previous Design Day booklets, which you can find here.

You must use the Microsoft Windows version of Word. Do NOT even think about using anything else.

The first two or three lines must be about your client. The following is an example.

Auto-Owners Insurance is a Fortune 500 company that provides automotive, home, and commercial insurance to nearly 3 million policyholders in 26 states.

Do NOT use phrases like "Our clients asked us to," or "Our project is..."

Do NOT use phrases like "Our software aims to," or "Our software is designed to..."

Write everything in the present tense.

Do NOT write anything negative about your client like "Our client's current software is horrible; ours is better."

Read the Design Day Booklet Page Instructions thoroughly, over and over and over.

It's okay for a paragraph to have only one sentence as long as the sentence is long enough to take up at least 1.5 lines.

The last few lines (and only the last few lines) must contain technical details about your project. The following is an example.

The frontend of AVAST (Amazon Video And Shipping Technology) is built using Angular 6, while the backend is implemented using PHP. Lauren, in addition, several Amazon Web Services are used including Reckonage to analyze videos.

Michigan State University Team Members (left to right)

Josh Povazsky
Frankie Morgan
Jack Swoke
Naperville, Illinois
Laura Demia
Jackson, Michigan
Audrey Ferguson
Jackson, Michigan

United Airlines Training Project Sponsors

Amadeus Anne
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rick Brown
Chicago, Illinois
Lynda McDaniel
Houston, Texas
Tom Mitchell
Chicago, Illinois
United Airlines
Training Scheduling and Optimization System II

United Airlines is the world’s second largest airline company, operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United’s Technical Operations division has 60 instructors, who teach around 700 classes yearly to over 7,000 employees.

Our Training Scheduling and Optimization System II provides a web app to facilitate United’s maintenance training schedulers to schedule instructors and students for courses across the country. When the scheduler goes to schedule a course, the system displays available locations and instructors. The scheduler can also schedule a course from a training request inputted by instructors or supervisors.

Our system contains a schedule optimization system. Within a given time frame, a scheduler inputs a set of classes and locations. The optimizer recommends an optimal schedule including instructor and classroom. This reduces the amount of time the scheduler needs to plan courses.

The scheduler will be able to view calendars with published, planned, and optimized courses. They can edit classes from this view. The calendars can be sorted by instructor, location, and class. If a conflict is attempted to be scheduled, a notification will alert the scheduler.

The web app is fully functional using both web browsers and mobile browsers.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an app service on Azure Cloud Platform.

Michigan State University
Team Members (left to right)
Josh Ponzelli
Patrick Mieczark
Jack Gondek
Matthew, Illinois
Laura DeRosa
Laura, Michigan
Andrew Ferguson
Cleveland, Michigan

United Airlines
Project Sponsors
Amador Arno
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rick Brown
Chicago, Illinois
Lynda Kelleher
Houston, Texas
Tom Williams
Chicago, Illinois
United Airlines
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Michigan State University
Team Members (left to right)
Josh Pecorini
Patrick Fabian
Jack Goenka
Laura Emilia
Laura, Michigan
Andrew Ferguson
Lindon, Michigan

United Airlines
Project Sponsors
Amador Anne
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rick Brown
Chicago, Illinois
Lynda McManus
Houston, Texas
Tom Williams
Chicago, Illinois
United Airlines

Training Scheduling and Optimization System II

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When the scheduler wants to schedule a course, they must take into account a number of factors, including instructor availability, venue availability, instructor travel distance, and instructor qualifications.

Using our web and iOS apps, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few classes in a short time frame. However, when dealing with a large number of classes, taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

The optimized schedule minimizes the distance traveled by instructors, and takes into account instructor preferences and room availabilities.

An optimized schedule saves United Airlines significant time, money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The webapp is hosted as an app service on Azure Cloud Platform.

Round 1 edits by James and Ryan ...

- Our Training Scheduling and Optimization System II provides a web app to facilitate United’s maintenance training schedulers to schedule instructors and students for courses across the country.
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United Airlines
Training Scheduling and Optimization System II

United Airlines is the world's second largest airline company operating 4,600 flights a day to 357 destinations. To maintain its fleet of 1,300 aircraft and ensure successful flights, it is crucial to have properly trained personnel. United's Technical Operations division has 60 instructors, who teach around 720 classes yearly to over 7,000 employees.

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Michigan State University
Team Members (left to right)
Josh Pisanski
Patrick Michigan
Jack Good
Naperville, Illinois
Laura Emmel
Lansing, Michigan
Andrew Ferguson
Comer, Michigan

United Airlines
Project Sponsors
Amador Acosta
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rick Brown
Chicago, Illinois
Lynda McDaniel
Houston, Texas
Tom Wiliams
Chicago, Illinois
United Airlines
Training Scheduling and Optimization System II

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Michigan State University Team Members (left to right)
Josh Pasciuk
Patrick Michgan
Jack Goode
Naperville, Illinois
Laura Emilia
Laurel, Michigan
Andrew Ferguson
Canton, Michigan

United Airlines Project Sponsors
Amelia Anne
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rex Brown
Chicago, Illinois
Lynda McDaniel
Houston, Texas
Tamm William
Chicago, Illinois
3 Artwork Draft From Team To Dr. D.
Dr. D. duplicated existing artwork to illustrate requested update.
3
Artwork Update
From Team
To Dr. D.

United Airlines
Training Scheduling and Optimization System II

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Using our web and iOS apps, users can schedule classes manually, or through our automated schedule optimizer. Manual scheduling can be used effectively for a few courses in a short timeframe. However, when dealing with a large number of classes, taking into account all relevant factors, manual scheduling is an arduous task.

Our schedule optimization feature allows a scheduler to input a given timeframe, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments.

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Team Members (left to right)
Josh Pecenelli
Farragh, Michigan
Jack Goanka
Naperville, Illinois
Laura Emile
Dearborn, Michigan
Andrew Ferguson
Lansing, Michigan

United Airlines
Project Sponsors
Jeremiah Anne
Chicago, Illinois
Craig Bennett
Chicago, Illinois
Rick Brown
Chicago, Illinois
Lynda McDaniel
Houston, Texas
Tom Williams
Chicago, Illinois
Final Update
From Team
To Dr. D.

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- Josh Pecenelli
- Patrick Michigan
- Jack Goenke
- Naperville, Illinois
- Laura Enuff
- Lansing, Michigan
- Andrew Ferguson
- Lansing, Michigan

United Airlines
Project Sponsors
- Amanda Anne
  Chicago, Illinois
- Craig Bennett
  Chicago, Illinois
- Rick Brown
  Chicago, Illinois
- Jamie Hill
  Chicago, Illinois
- Lynda McDaniel
  Houston, Texas
- Tom Wilson
  Chicago, Illinois
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Josh Pecenelli
Patrick, Michigan

Jack Goosha
Naperville, Illinois

Laura Ermaa
Lansing, Michigan

Andrew Ferguson
Lansing, Michigan

United Airlines

Project Sponsors
Aminnaz Adzmi
Chicago, Illinois

Craig Bennett
Chicago, Illinois

Rick Brown
Chicago, Illinois

Jamie Hill
Chicago, Illinois

Lynda McIntosh
Nashville, Tennessee

Tom Wilson
Chicago, Illinois
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Our schedule optimization feature allows a scheduler to input a given time frame, a set of classes, and a set of locations. The optimizer then recommends an optimal schedule, including instructor and classroom assignments. The optimized schedule minimizes the distance traveled by instructors and takes into account instructor qualifications and venue availability.

An optimized schedule saves United Airlines significant time, money, and resources.

Our Training Scheduling and Optimization System II web app is built with ASP.NET Core, Angular 8, Node.js, an Entity Framework, and an Azure SQL database. The web app is hosted as an API service on Azure Cloud Platform.

Michigan State University
Team Members (left to right):
- Joed Powiszk
  Franklin, Michigan
- Jack Steeke
  Naperville, Illinois
- Laura Dania
  Livonia, Michigan
- Andrew Ferguson
  Livonia, Michigan

United Airlines
Project Sponsors:
- Amazon Air
  Chicago, Illinois
- Craig Bennett
  Chicago, Illinois
- Rick Brown
  Chicago, Illinois
- Jamie Hill
  Chicago, Illinois
- Lynda McDaniel
  Houston, Texas
- Tom Wilson
  Chicago, Illinois
<table>
<thead>
<tr>
<th>Weekday</th>
<th>Date</th>
<th>Task</th>
<th>Elapsed Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>February 3</td>
<td>1. Dr. D. posts zipped folders with templates for downloading.</td>
<td>0</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 6</td>
<td>1. Dr. D. discusses process at all-hands meeting.</td>
<td>3</td>
</tr>
<tr>
<td>Sunday</td>
<td>February 9</td>
<td>1. Teams submit zipped folders with first draft by 11:59 p.m.</td>
<td>6</td>
</tr>
<tr>
<td>Monday</td>
<td>February 10</td>
<td>1. TAs begin editing project descriptions.</td>
<td>7</td>
</tr>
<tr>
<td>Monday</td>
<td>February 10</td>
<td>2. Dr. D. edits the artwork and creates artwork feedback.</td>
<td>7</td>
</tr>
<tr>
<td>Monday</td>
<td>February 10</td>
<td>3. Dr. D. posts zipped folders with artwork feedback for downloading.</td>
<td>7</td>
</tr>
<tr>
<td>Monday</td>
<td>February 10</td>
<td>4. Teams begin updating artwork.</td>
<td>7</td>
</tr>
<tr>
<td>Tuesday</td>
<td>February 11</td>
<td>1. Dr. D. discusses artwork feedback at all-hands meeting</td>
<td>8</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 12</td>
<td>1. TAs submit project description edits by 11:59 p.m.</td>
<td>9</td>
</tr>
<tr>
<td>Wednesday</td>
<td>February 12</td>
<td>2. Teams submit zipped folders with updated artwork by 11:59 p.m.</td>
<td>9</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 13</td>
<td>1. TAs and Jill meet to discuss project descriptions.</td>
<td>10</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 13</td>
<td>2. Jill begin editing project descriptions.</td>
<td>10</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 13</td>
<td>3. Dr. D. edits the artwork and creates artwork feedback.</td>
<td>10</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 13</td>
<td>4. Dr. D. posts zipped folders with artwork feedback for downloading.</td>
<td>10</td>
</tr>
<tr>
<td>Thursday</td>
<td>February 13</td>
<td>5. Dr. D. discusses artwork feedback at all-hands meeting</td>
<td>10</td>
</tr>
<tr>
<td>Sunday</td>
<td>February 16</td>
<td>1. Teams submit zipped folders with updated artwork by 11:59 p.m.</td>
<td>13</td>
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<tr>
<td>Monday</td>
<td>February 17</td>
<td>1. Jill submits project description edits by 8:00 a.m.</td>
<td>14</td>
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<tr>
<td>Monday</td>
<td>February 17</td>
<td>2. TAs and Jill meet to discuss project descriptions.</td>
<td>14</td>
</tr>
<tr>
<td>Monday</td>
<td>February 17</td>
<td>3. Dr. D. posts edited project descriptions for downloading.</td>
<td>14</td>
</tr>
<tr>
<td>Tuesday</td>
<td>February 18</td>
<td>1. Dr. D. discusses project description edits at all-hands meeting.</td>
<td>15</td>
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<tr>
<td>Wednesday</td>
<td>February 19</td>
<td>1. Teams submit final version of project description.</td>
<td>16</td>
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<tr>
<td>Thursday</td>
<td>February 20</td>
<td>1. Dr. D. discusses any remaining issues at all-hands meeting.</td>
<td>17</td>
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<tr>
<td>Friday</td>
<td>February 21</td>
<td>1. Dr. D. merges final artwork with final project description.</td>
<td>18</td>
</tr>
<tr>
<td>Friday</td>
<td>February 21</td>
<td>2. Dr. D. posts zipped folders with final version for downloading.</td>
<td>18</td>
</tr>
<tr>
<td>Sunday</td>
<td>February 23</td>
<td>1. Teams submit zipped folders with final version by 11:59 p.m.</td>
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<tr>
<td>Monday</td>
<td>February 24</td>
<td>1. Dr. D. submits zipped booklet assets to graphic designer.</td>
<td>21</td>
</tr>
</tbody>
</table>

Spring 2020
## Design Day Production Calendar

### February 2020

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
</tr>
</thead>
<tbody>
<tr>
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<td>27</td>
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<td>32</td>
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<td>34</td>
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</tbody>
</table>

#### Key Events:
- **2**: 1 Dr D Posts Template Zip to Teams
- **3**: 1 TA’s Begin Editing Proj Desc
- **4**: 1 Dr D Discusses Artwork Feedback at All-Hands
- **5**: 1 TA’s Submit Proj Desc Edits by 11:59pm
- **6**: 1 Dr D Discusses Artwork Feedback at All-Hands
- **7**: 1 TA’s Submit Final Proj Desc by 11:59pm
- **9**: 1 Teams Submit Zip by 11:59pm
- **10**: 1 JB Submits Proj Desc Edits
- **11**: 1 Dr D Discusses Proj Desc at All-Hands
- **12**: 1 Dr D Discusses Proj Desc at All-Hands
- **13**: 1 TA’s & JB Discuss Proj Desc
- **14**: 1 Dr D Merges Final Proj Desc with Artwork
- **15**: 1 Dr D Posts Merged Zip to Teams
- **16**: 1 Teams Submit Updated Artwork Zip by 11:59pm
- **21**: 1 Dr D Posts Final Zip for Graphic Designer
- **22**: 1 Dr D Discusses Remaining Issues at All-Hands

---

*Dyksen, Wayne*

*2/2/2020 2:55 PM*
Submission

• READ Instructions Carefully
• Zipped Assets Folder
  ▪ Name: team-urban-science-design-day-booklet-page
  ▪ Contents
    o team-urban-science-design-day-booklet-page.docx
    o team-urban-science-artwork-1.png (Very High Resolution)
    o team-urban-science-artwork-2.png (Very High Resolution)
    o team-urban-science-artwork-3.png (Very High Resolution)
  ▪ Zipped
• Email
  ▪ Subject: Team Urban Science Design Day Booklet Project Page
  ▪ Body
    o Not Blank
    o Something Professional
  ▪ Attachment
    o Zipped Assets Folder
    o team-urban-science-design-day-booklet-page.zip
  ▪ Due 11:59 p.m., Sunday, February 9.