



# Ship Building and Repair Career Day Events Project Update

## *Recruiting the Future Generation of Shipbuilders*

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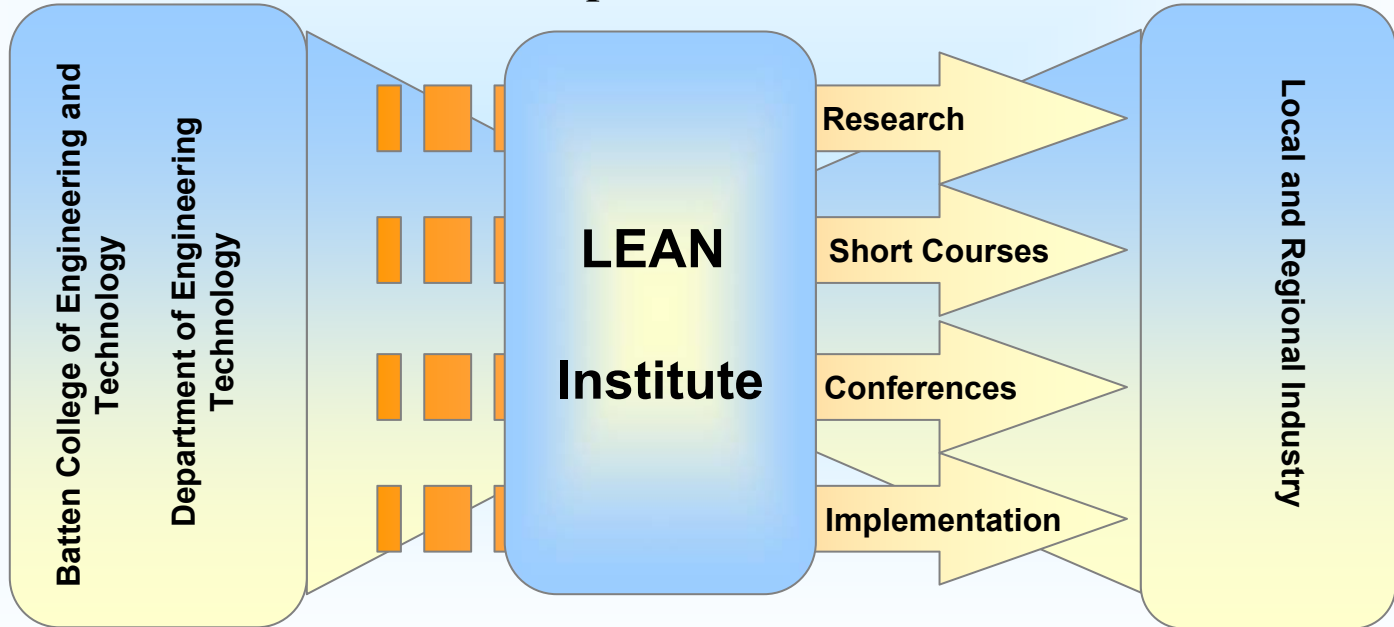
Joint Panel Meeting – June 12-13, 2007

Newport, RI



# Lean Institute at ODU

Focus on Research, Education & Short Courses, Conferences and Implementation



\* Implementation is done with the help of Virginia Applied Technology and Professional Development Center



# Ship Building and Repair Career Day Events Project

- \* Two Career Day Events
  - \* Development of Two Simulation Kits for Schools
  - \* Workshops for Teachers and Counselors
  - \* Promote a Positive Image of Industry
  - \* Larger Pool of Qualified Candidates for the Industry
- Duration 18 Months 1/07 – 7/08

**Lead Inst.**  
**ODU**

**Participating Organization**  
**NGNN**



**Colonna's**  
**Participating Organization**

**NGSS**  
**Participating Organization**



# Other Participating Organizations



# SBRCRD Project

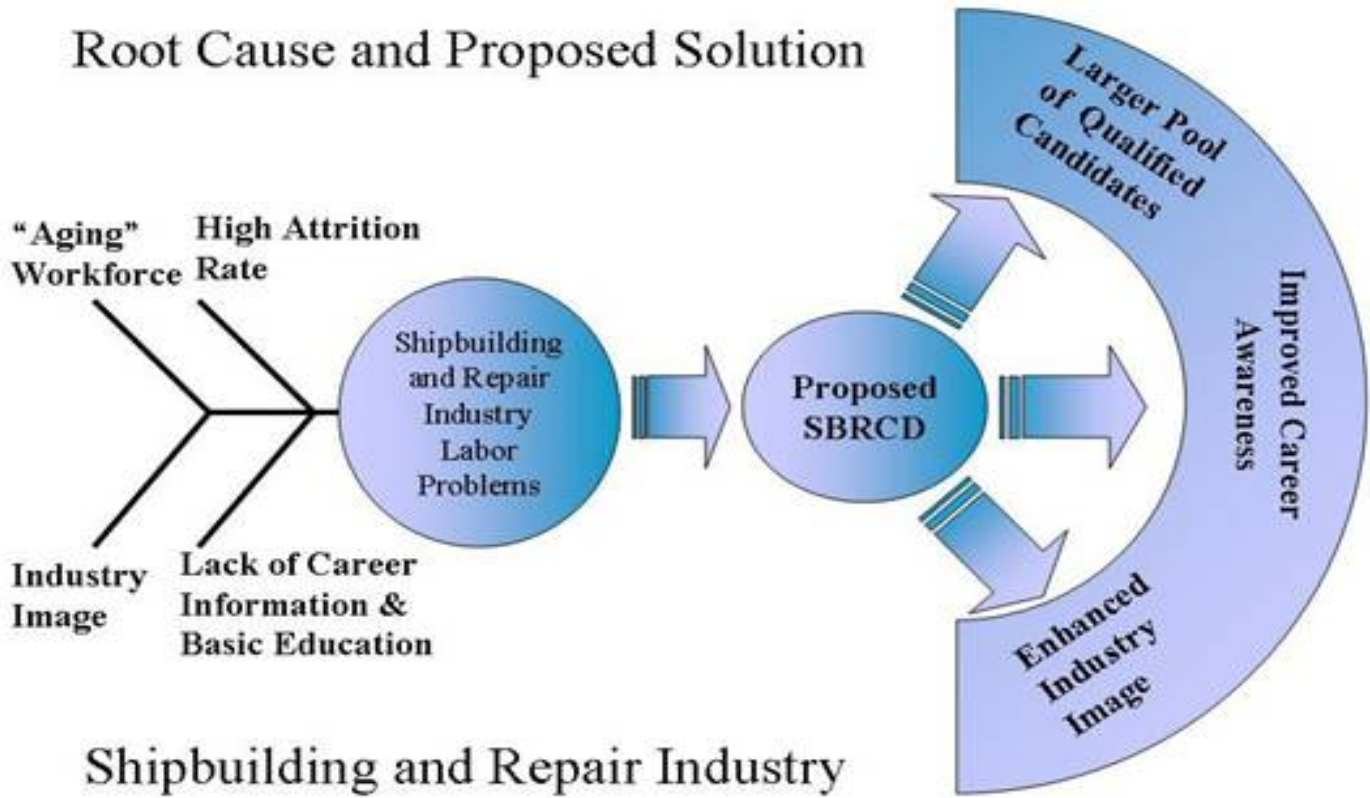


National Shipbuilding Research Program

Old Dominion UNIVERSITY  
Changing Lives

## The Problem Defined

### Root Cause and Proposed Solution



Shipbuilding and Repair Industry



## SBRC'D : Benefits

- Improved Career Awareness Among Middle and High School Students
- Larger Pool of Qualified Candidates for the Shipbuilding and Repair Industry
- Enhanced Industry Image
- Reduced Cost of Recruitment and Retention for Shipyards
- Schools, Teachers and Counselors that View Shipbuilding and Repair in a Favorable Sight.



## SBRCDC Impact Area



Source: American Shipbuilding Association



SBRCDC Extended Impact Area  
200 - mile radius



SBRCDC Impact Area  
100 - mile radius



# SBRC D Project Schedule

Year	Phase 1	Phase 2																									
		Q1				Q2				Q3				Q4				Q1		Q2							
No.	Major Task\Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7							
1	Career Day Planning	# #																									
2	Web Site Development & Deployment	█																									
3	Career Day Implementation													## ##													
4	Design & Development of Simulation Kits	█																									
5	Fabricate Simulation Kits							█																			
6	Development of Training Program							█																			
7	Prepare & Deliver Final Report																				█						
8	Technical Report-20th Day			*			*			*			*			*			*		*						
9	Business Report-20th Day			*			*			*			*			*			*		*						
10	Project Kick off Meeting			MAR-9																							
11	Project Management Plan			MAR-30																							
12	Technology Transfer Plan			MAR-30																							
13	Kickoff Meeting Minutes			MAR-15																							
#	Teachers' & Counselors' Workshops													## SBRC D Events in two areas													

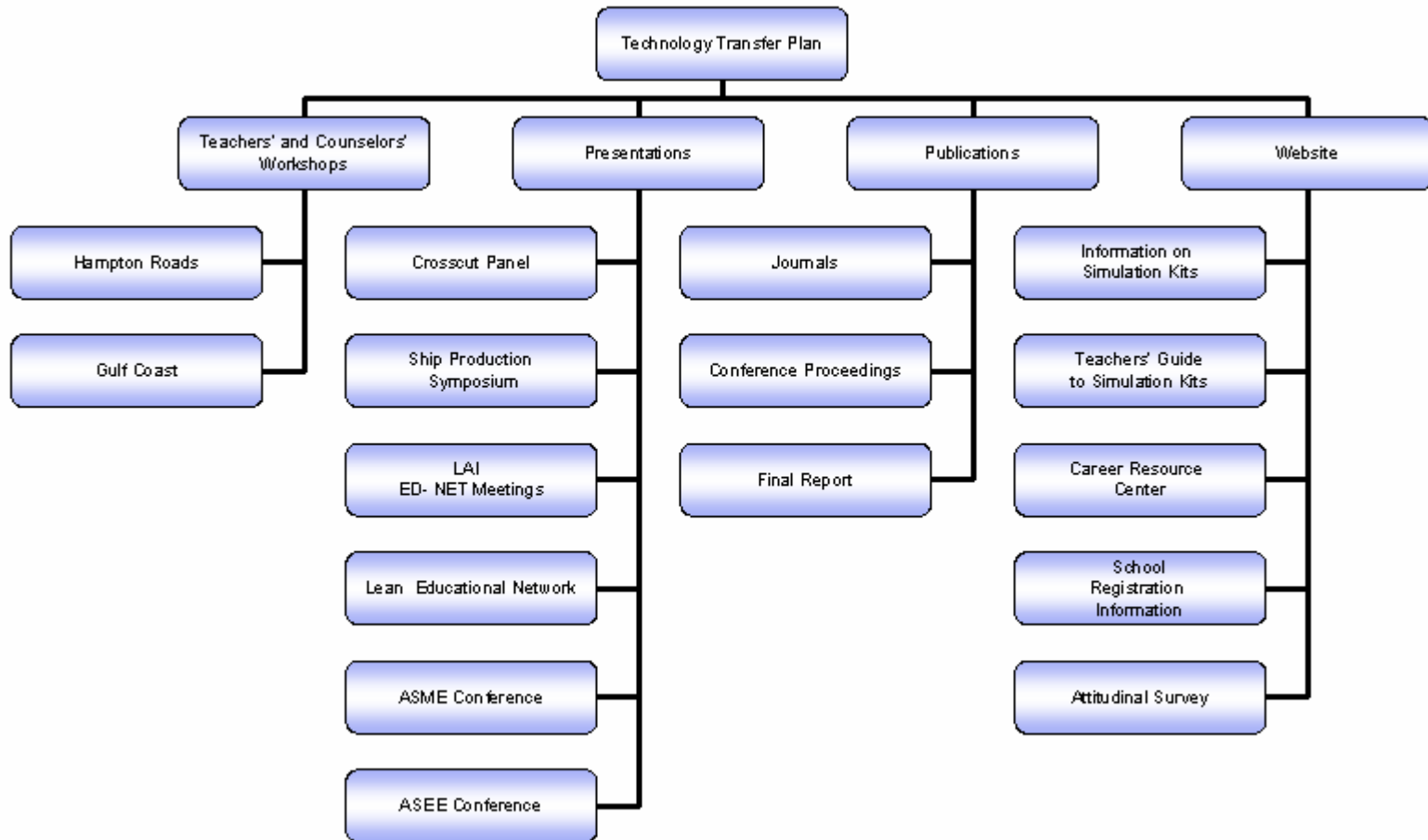


## SBRC: Main Components

- Hands-on booths related to shipbuilding and repair
- Heavy equipment displays
- Industry booths displaying industry corporate information
- Design and development of simulation kits for middle and high school students
- Training for counselors and teachers
- Workshops for teachers and counselors in shipbuilding and repair operations
- Attitudinal survey



# Technology Transfer Plan





## SBRC Website – Developed and Deployed

- Portal for students, teachers and counselors
- SBRC Event schedule
- Results obtained during the project
- Website will be maintained for 5 years
- Provide links to Cross Cut & other career resource centers
- Information about career paths, skill sets, educational requirements, job description

<http://www.lions.odu.edu/~averma/sbrcd/SBRCIndex.htm>



## SBRCD Preliminary Dates

- Hampton Roads SBRCD – January 2008
- Gulf Coast SBRCD – February 2008
- Teacher's & Counselor's Workshop – Hampton Roads – September 2007
- Teacher's & Counselor's Workshop – Gulf Coast – October 2007
- Teachers Workshop – Full Day
- Counselor's Workshop – Half Day

<http://www.lions.odu.edu/~averma/sbrcd/SBRCDIndex.htm>



## SBRC'D Venue

- Hampton Roads SBRC'D – Ted Constant Center- ODU
- Gulf Coast SBRC'D – Selection under progress
- Teacher's & Counselor's Workshop – Hampton Roads – Ted Constant Center or Advanced Technology Center
- Teacher's & Counselor's Workshop – Gulf Coast – Selection under progress
- In the process of identifying industry speakers

<http://www.lions.odu.edu/~averma/sbrcd/SBRC'DIndex.htm>



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SBRCRD Website

- OLD DOMINION UNIVERSITY**
- ▶ Home
  - ▶ Objectives
  - ▶ Partners
  - ▶ SBRCRD Teams
  - ▶ Project Schedule
  - ▶ Reports
  - ▶ Minutes Of Meeting
  - ▶ Simulation Development
  - ▶ Workshops
  - ▶ Tech. Transfer Plan
  - ▶ Simulation Kits

## Ship Building and Repair Career Day Events

Recruiting Future Generation of Shipbuilders

TI Agreement No. 2007-375

### SBRCRD Project

During the past several years, workforce issues have emerged as a dominant concern for the shipbuilding and repair industry. Related issues include concern about "aging" of the workforce, lack of basic technical education, career transition processes, recruitment and training of new workforce, retention and training of the incumbent workforce, image of the industry and lack of career information for middle and high school students.

The Shipbuilding Career Days project will provide a day-long educational environment for students to learn about various career options in shipbuilding and ship repair. It will address the knowledge gap that exists among middle and high school students about careers in the shipbuilding and repair industry and will work to promote a positive industry image among students and general public.

The project team, led by Old Dominion University, will develop two simulation kits for use by counselors and teachers that will provide a valuable learning experience for students about various trade activities and processes involved in building a ship while introducing them to lean concepts. The career day will include hands-on activities to provide realistic experiences about the work environment and

- Download School Flyer
- Download Industry Flyer
- School Registration
- Industry Registration



# SBRCRD Project



National Shipbuilding Research Program

## SBRCRD Flyers





**Why Ship-Building and Repair Industry?**

- Competitive Salaries
- Advanced Technology
- Challenging jobs and work environment

**Career Paths for Shipbuilding and Repair**

Education	Path	Typical Roles	Average earnings per year
Middle School	Craft and Technology Training	• Welder • Fitter • Pipe Fitter • Electrician • Others	\$ 43,000 - \$ 45,000
High School	Community College and Out Training Program (1-4 years)	• Lead Fitters • Planners • CAD Designers	Average earnings per year \$ 35,000 - \$ 40,000
College or University (1-4 years)	Naval Architects Engineers		Average earnings per year \$ 51,000 - \$ 65,000

**What to look for at the Career Day Event?**

- Career information on the shipbuilding and repair industry
- Hands-on activities related to shipbuilding and repair
- Interact with industry professionals
- Heavy equipment displays
- Shipyards tours
- Simulate shipbuilding and repair activities

**Role in the U.S. Industry**

- Strategic asset supporting both military and commercial interest
- U.S. GDP in 2002 - \$10.5 trillion
- U.S. shipbuilding and repair industry is 0.117 % of U.S. GDP
- 87,666 employees
- 250 private and 5 public yards
- Aging workforce
- High attrition rate - 35 %
- 12% increase in productivity since 1995
- East coast and Gulf coast shipyards account for over 80% of total revenue

**Teachers' and Counselors' Workshop**

- Workshops to inform teachers and counselors about shipbuilding and repair careers
- Career path information
- Meet experts from industry
- Tour of shipyard
- Participating school receives a shipbuild-

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SBRCRD Project Website <http://www.ions.edu.edu/~averma/SBRCRD.htm>






**SBRCRD Project:**

- Total Project Cost \$ 426,000
- NSRP Funding \$213,000
- Duration January 07-July 08
- Career Days in Three Major Shipbuilding Areas.  
Hampton Roads  
Alaska
- Promoting Positive Image of Industry
- Introduction to Lean Concepts
- Develop Virtual Career Resource Center for the Shipbuilding and Repair Industry
- Workshops for Teachers and Counselors

**SBRCRD Project Website**  
<http://www.ions.edu.edu/~averma/SBRCRD.htm>

**Ship Building and Repair Career Day Events**

Workshops for Teachers and Counselors

Workshops to inform teachers and counselors about shipbuilding and repair careers



**For more information contact:**  
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**Career Day Event Highlights**

- 3 Career Day Events in January, March and May 2008
- Introduction to Lean Manufacturing
- Heavy Equipment Display
- Hands on Sooths
- Interaction with Industry Professionals
- Focus on Middle School and High School Students
- Invited Speakers
- Career Path Information
- Career Counseling
- Simulated Shipbuilding and Repair Activities and Processes

**National Shipbuilding Research Program (NSRP)** has funded a project submitted by the Lean Institute titled "Shipbuilding and Repair Career Day Events". This project will increase the number of students interested in shipbuilding and repair careers and provide increased career awareness among Middle and High School students.



**SBRCRD Project Schedule**

Task	01	02	03	04	05	06	07	08
Major contract award								
Career Day Planning								
Final Ship Development & Deployment								
Career Day Implementation								
Design, Development of Curriculum Gap								
Publicize Simulation File								
Development of Training Program								
Program & Career Day Readout								

**SBRCRD Inset Area**





## Simulation Activities

Introduce students to:

Simulations

1

Ship Construction	Middle School
	High School

Ship construction activities within a shipyard

2

Ship Yard Operations	Middle School
	High School

Operations activities within a shipyard



## Simulation Activities

Our Goal is:

- To design engaging learning activities to teach students about ship building and repair activities.
- To align them with SOL objectives.
- To make it interesting enough that teachers will use them in classrooms.
- Each participating school will receive one kit for each of the simulation activities

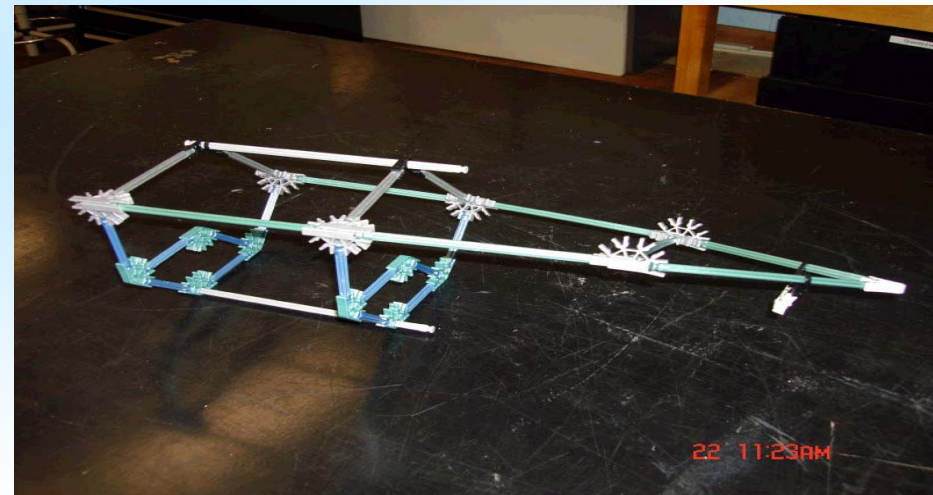
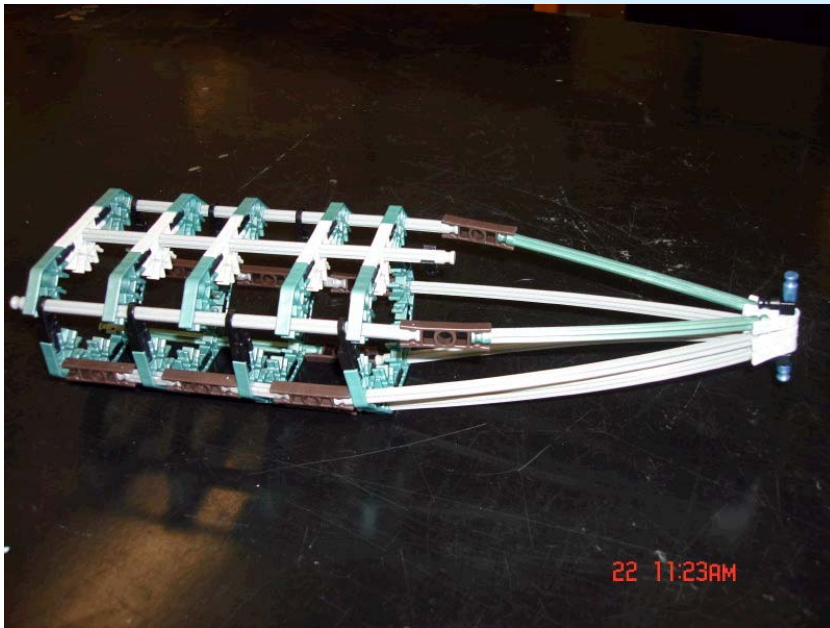


# Ship Construction Activity

Models are built using Knex Parts

High School Model

Middle School Model





## Ship Construction Activity

Students play the roles of various employees within a hypothetical shipyard

- The entire activity is completed in three sessions.
- Students work in groups of 2 to 4.
- Each session is 55 min. long.
- Includes a 15 minute introduction by teacher
- Followed by 40 minutes of student activity



## Ship Construction Activity

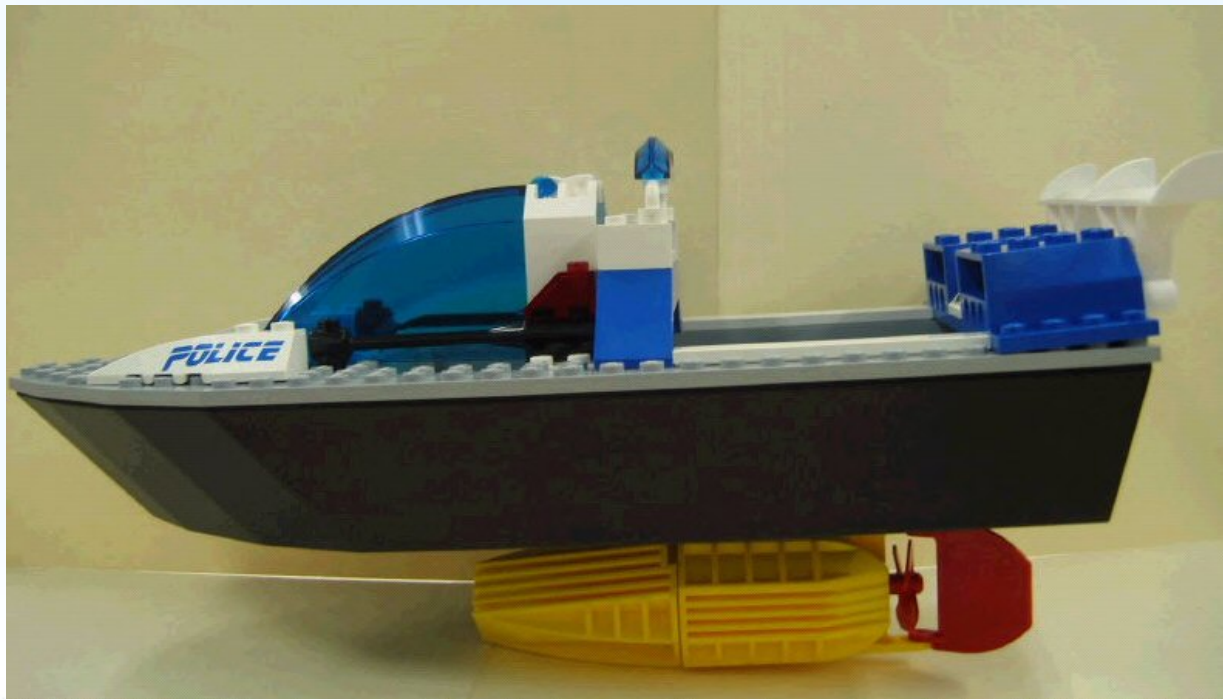
### Activity Schedule

- Day 1: Bill of Material / Cost Estimation
- Day 2: Construction of Ship
- Day 3: Design Calculations



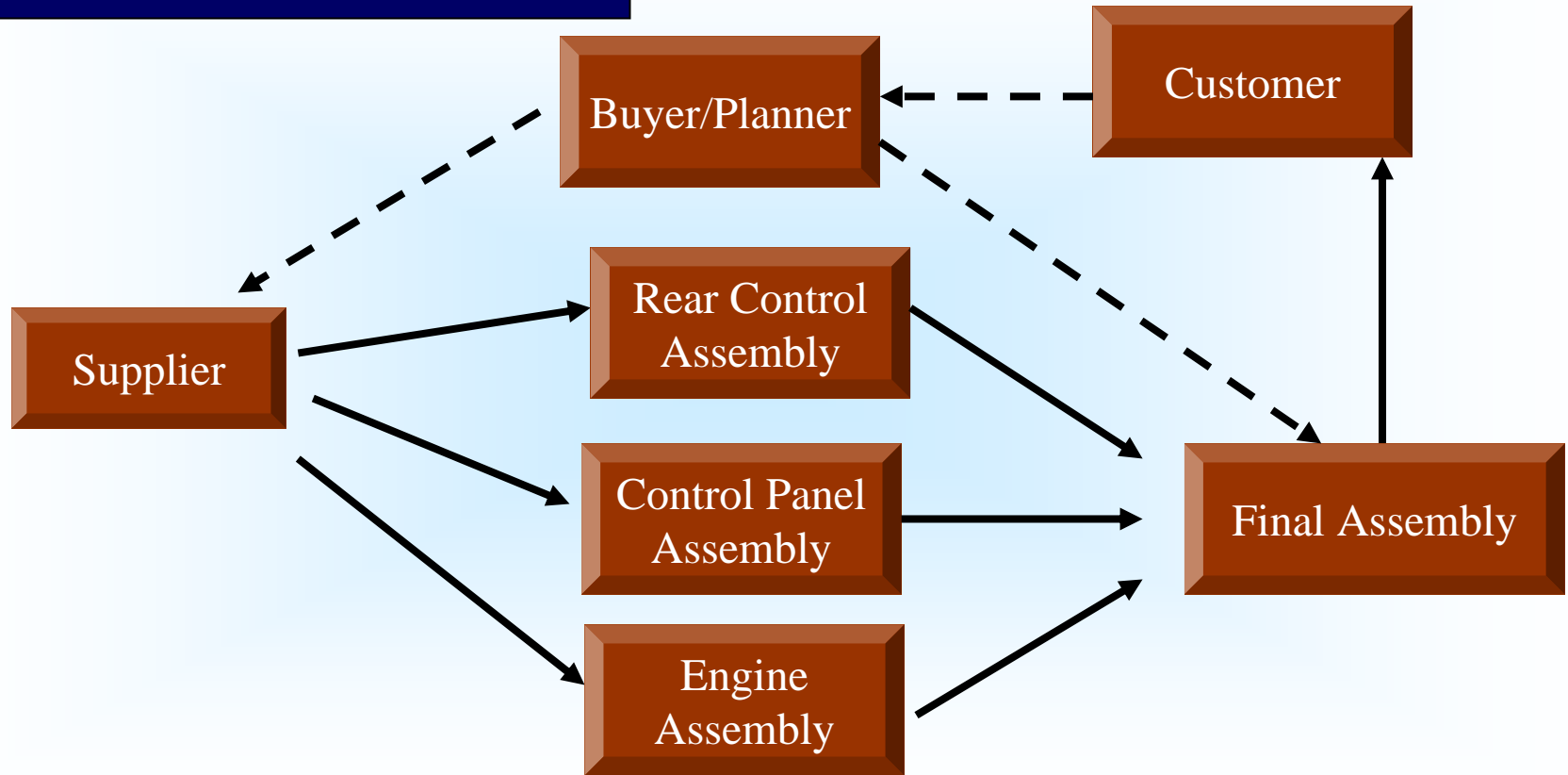
## Shipyard Operation Simulation

Students assemble police patrol boats and learn about various operations in the yard





## Parts & Information Flow

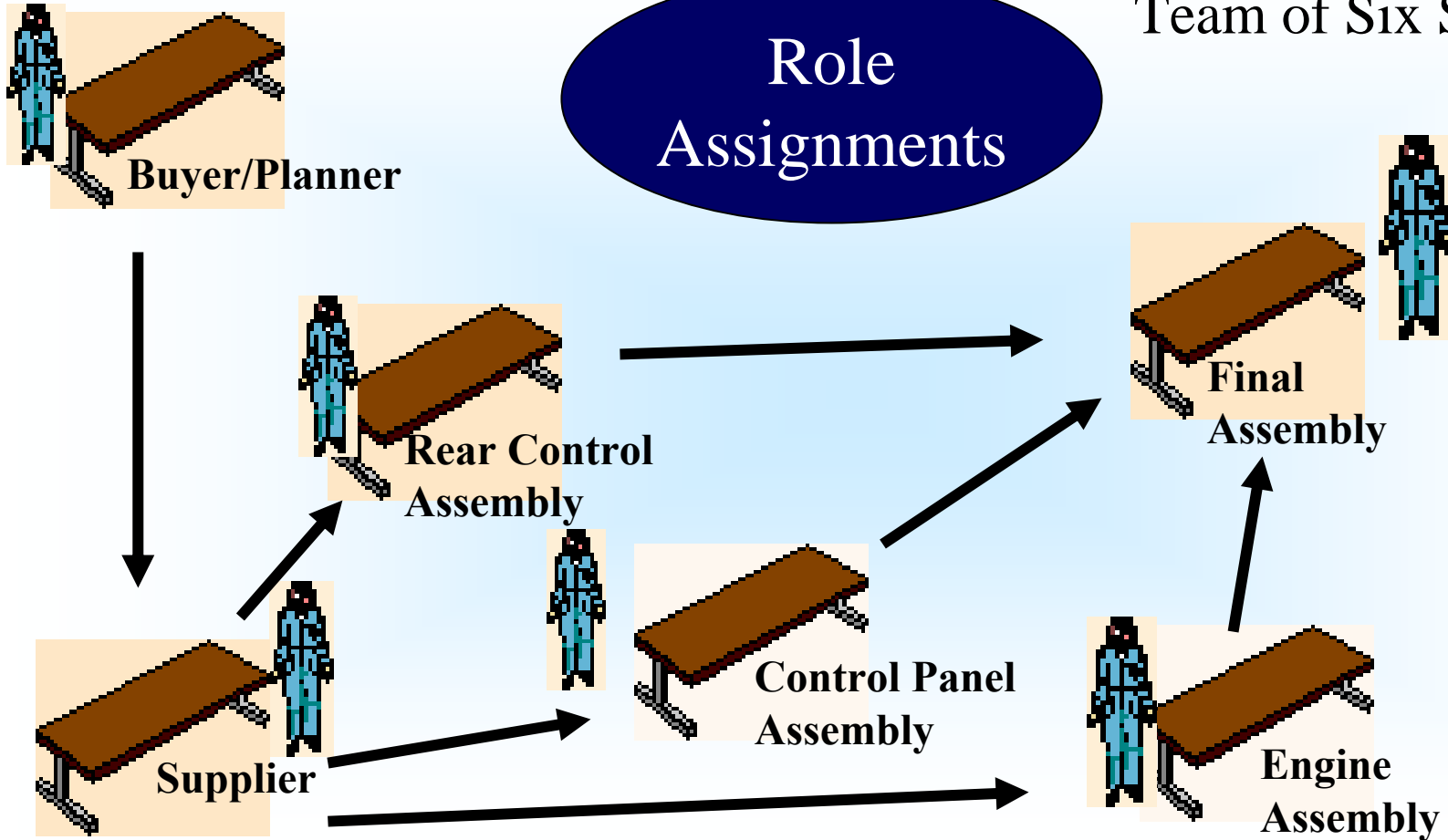


→ Material flow     
 - - - → Information flow



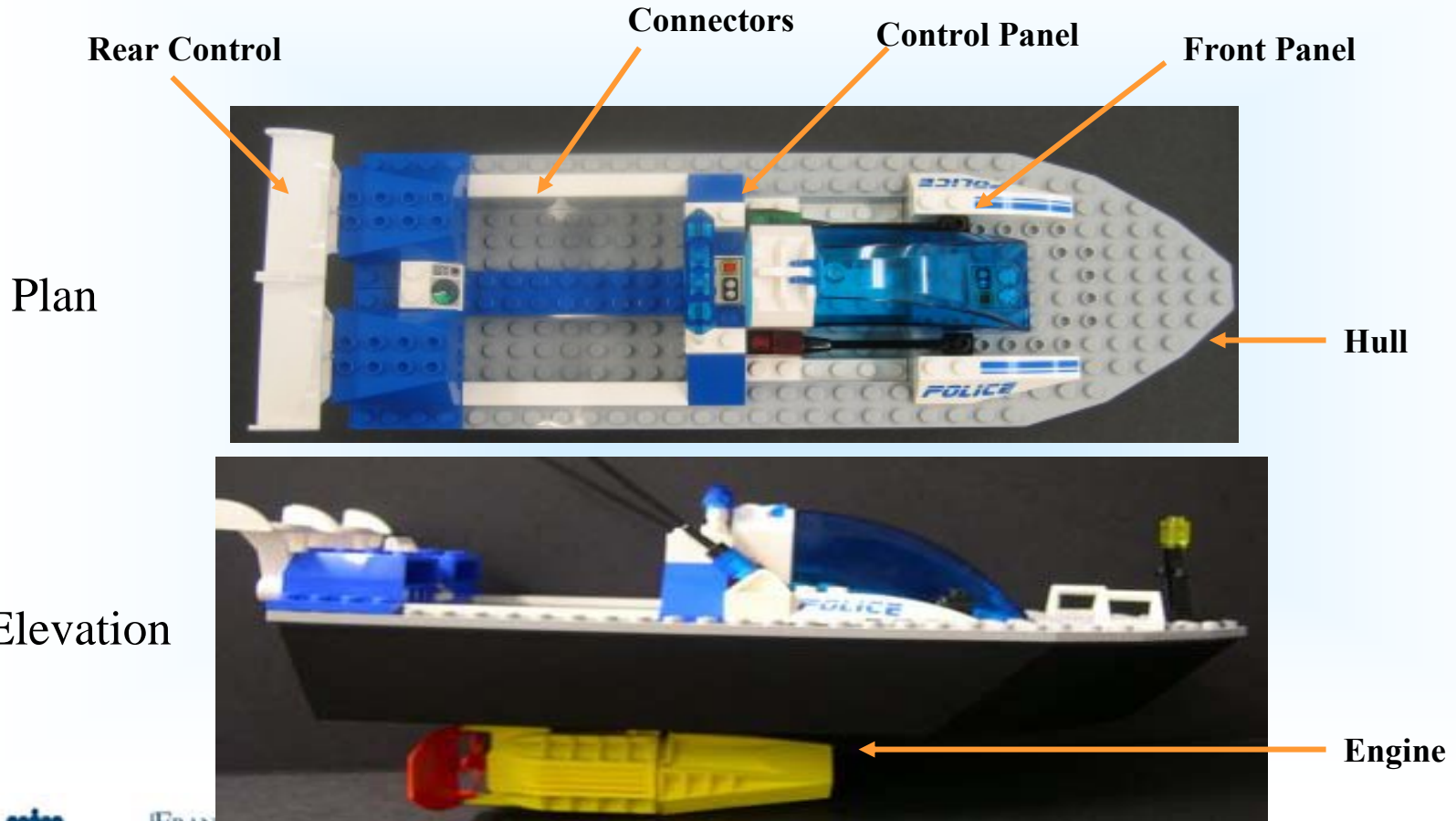
**Role Assignments**

Team of Six Students





# ABC Inc. – Police Patrol Boats Manufacturers





# Thank You



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