Maritime Engineering and Environmental Studies Academy

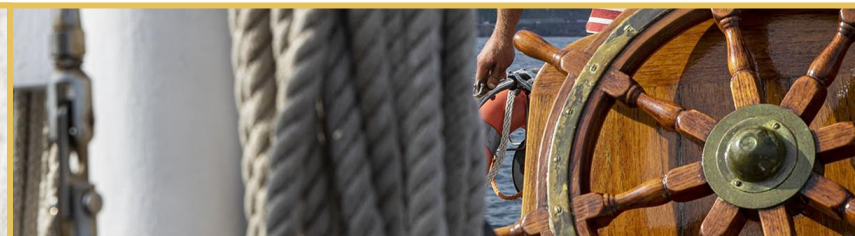
College Partnership Laboratory Schools
Standing Committee Meeting - April 8, 2024

Why Maritime Engineering and Environmental Studies Academy (MEESA)?

- ODU and NNPS propose a maritime high school program focused on maritime engineering, coastal resilience, and digital supply chain

- The maritime theme was selected for multiple reasons:
  - Workforce needs (Hanover Research and Data from Bureau of Labor Statistics)
  - 53,000 regional jobs in transportation and shipbuilding sectors
  - “Severe shortages” identified in 2019 by Hampton Roads Workforce Development study





What are the goals of MEESA?

MEESA will incorporate innovative and research-based teaching strategies in partnership with ODU to provide students with a path towards high-demand jobs in the maritime industry.

Teaching strategies will include student-guided learning, STEM integration, experiential learning, guided inquiry, design thinking, and work-based learning opportunities.

MEESA Mission/VIsion

Our mission is to inspire students as future leaders in maritime engineering and environmental sciences; provide a dynamic teaching laboratory for educators through innovative education, hands-on experiences; and collaborate around research to build and share knowledge of transformative practices.

MEESA Vision

Empowering students and educators alike, our vision is to be a beacon of excellence, cultivating stewards of the seas, guardians of the environment, and preparing students for a world of digital engineering, as the Maritime Engineering and Environmental Studies Academy pioneers transformative education, research, and hands-on exploration for a brighter, more resilient future.

Sample Student Schedule

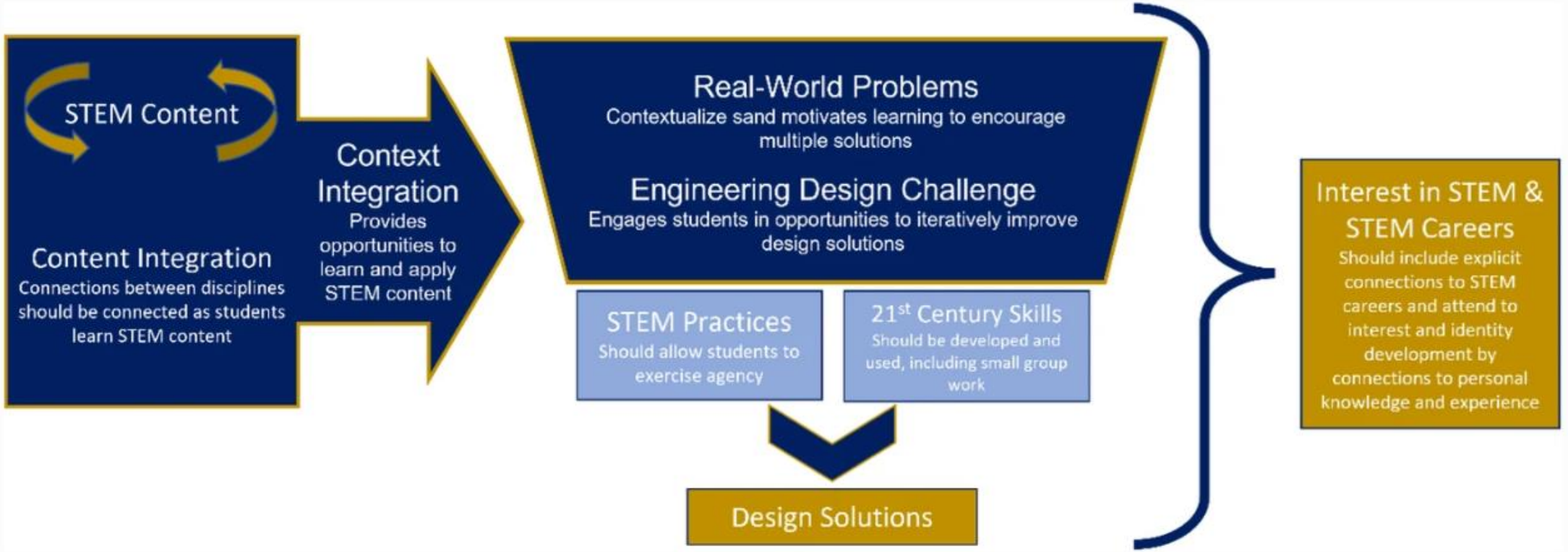
11th Grade *A Day/B Day*	
Time	**Course**
7:25 a.m.-8:45 a.m.	Renewable Energy
8:45 a.m.-8:55 a.m.	**BREAK**
8:55 a.m.-10:15 a.m	Engineering Analysis & Applications II
Return to Home School	

Sample Student Schedule *12th Grade* *A Day/B Day*	
Time	**Course**
11:05 a.m.-12:35 p.m.	Engineering Concepts & Processes III
12:40 p.m.-1:30 p.m.	**Student Externship** **(Hybrid)**

MEESA Instructional Focus

Fig. 1

From: Beyond the basics: a detailed conceptual framework of integrated STEM



Interactions between critical characteristics of integrated STEM

MEESA College & Career Opportunities

Students participating in the MEESA will have the opportunity to:

- Earn up to **six college credits with Old Dominion University**
- Engage with the **ODU School of Maritime** Initiatives
- Participate in a **work-based learning** experience
- Develop an **electronic portfolio**
- Gain **job experience**
- Network with **future employers**
- Earn **industry certifications in maritime-related fields**

Business & Industry Partners

- Tidewater Chapter of the American Society of Naval Engineers (ASNG-TW)
- City of Newport News-Office of City Manager
- Newport News Shipbuilding-A Division of Huntington Ingalls
- The Port of Virginia
- Nauticus
- Department of Development, City of Newport News
- Youth Sailing Virginia
- Virginia Maritime Association
- Virginia Digital Maritime Center
- The Mariner’s Museum & Park
- Virginia Ship Repair Association
- Hampton Roads Workforce Council

Enrollment Projections

2024-2025	2025-2026	2026-2027	2028-2029	2029-2030
Start Up	60	110	110	110

Teacher Preparation & Development

- Building the next generations of future STEM and CTE teachers through Virginia Teachers for Tomorrow
- Preparing teacher candidates through rigorous, field-based residencies and apprenticeships
- Leverage the iLab as a professional development hub for innovative lesson development and design for practicing teachers

Research: Optimizing Impact

- Researcher-practitioner partnerships among ODU faculty and Lab School staff
  - Design-based research will emphasize data-informed decision making
- Evidence-based models of teacher professional development
  - Professional learning communities will focus on maritime studies and integration with maritime ecosystem
  - Action research and lesson study will promote learning for pre-service teachers

Evaluation: Establishing a Model

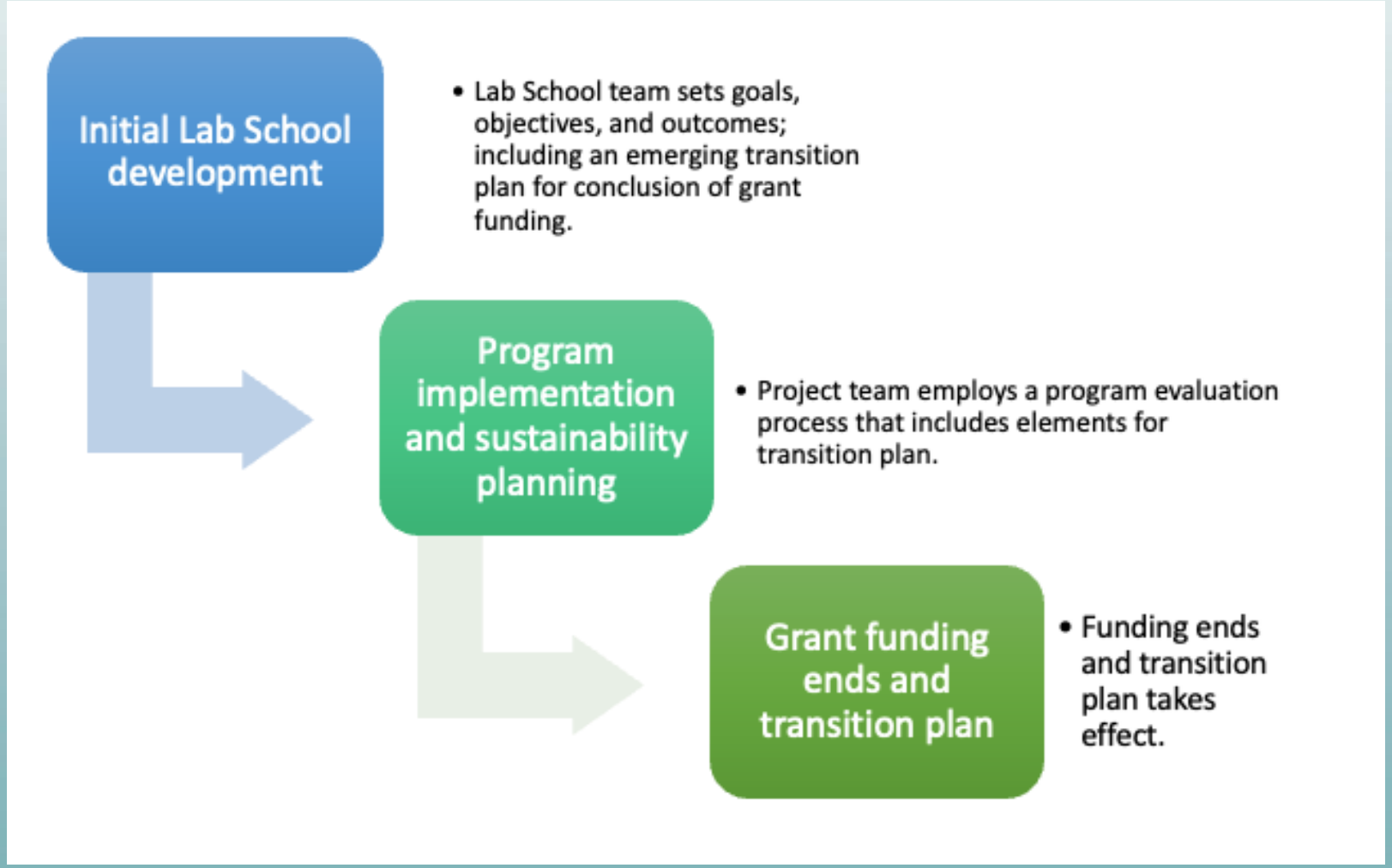
- To what extent are the Lab School components being implemented as planned?
- How are key stakeholders (e.g., students, parents, teachers, faculty) impacted by the Lab School?
- In what ways can the Lab School's sustainability strategies can serve as a model for others?

$ in 000's	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Lab School Operating Costs							
Personnel	496	348	402	410	419	387	2,462
Non-personnel Expenses	271	56	230	230	230	151	1,168
Staff development	58	25	50	50	50	24	257
Equip/Tech/Furniture	325	90	112	112	112	112	863
Admin Fee	50	-					50
Total Lab School Operating Costs	**1,200**	**519**	**794**	**802**	**811**	**674**	**4,800**
Annual Enrollment (# of pupils)		60	110	110	110	110	500
Cost per pupil ($)		$8,642	$7,218	$7,291	$7,373	$6,127	$1,920
Estimated Lab School Funding							
Planning Grant	200						200
Start-up	1,000						1,000
Operating		**385**	**735**	**735**	**735**		2,590
Subtotal College Partnership Lab School Fund	**1,200**	**385**	**735**	**735**	**735**	**-**	**3,790**
Outside Funding							
Local share							-
Grant funding		30	25	25	50	100	230
Philanthropic funding		30	-	25	50	100	205
Higher education institution support		49	80	100	100	100	429
Business & industry partner contributions			20	25	50	100	195
Fundraising and development		25	20	25	50	100	220
Subtotal Other Funding	**-**	**134**	**145**	**200**	**300**	**500**	**1,279**

Sustainability Plan

Braided sustainability approach leveraging our Maritime & STEM Regional Ecosystem

- Grants
- Development
- Fundraising
- Partnership position base funding
- Institutional commitment



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