



AGENDA

IALR Board of Trustees

MANUFACTURING ADVANCEMENT COMMITTEE

Thursday, February 1, 2024 - 10:45 am - Conference Room 203

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| I. Convening of Meeting | Mr. Ben Davenport |
| A. Welcome | |
| B. Call to Order and Confirmation of Quorum | |
| C. Call for Changes to Agenda | |
| II. Approval of Minutes | Mr. Ben Davenport |
| A. November 2, 2023 | |
| III. Manufacturing Advancement Update | Ms. Amanda Hylton |
| IV. Center for Manufacturing Advancement - Update | Mr. Telly Tucker |
| V. Open Discussion of Concerns, Issues, and Observations | Group |
| VI. Adjournment | Mr. Ben Davenport |

Reference material included: "Advanced Manufacturing Update"

Future Committee Meetings

May 2, 2024

Future Plenary Meetings

February 15, 2024

May 16, 2024

Advanced Manufacturing Committee Members

Mr. Ben Davenport, *Chair*
Mr. David Bennett
Mr. Don Gibson
Dr. Greg Hodges
Mr. Mark Holland
Mr. Don Merricks, *Ex Officio*
Mr. Lott Rogers
Dr. Jerry Wallace

IALR Staff

Mr. Telly Tucker, President
Ms. Amanda Hylton, VP of Strategic Initiatives
Ms. Pam Patterson, BOT Secretary



IALR BOARD OF TRUSTEES (BOT)
MANUFACTURING ADVANCEMENT COMMITTEE
Minutes – November 2, 2023 - 10:45 a.m. – Conference Room 205

<p><u>Members Present</u> Mr. Ben Davenport, <i>Chair</i> Mr. David Bennett Mr. Don Gibson Dr. Greg Hodges Mr. Mark Holland Mr. Don Merricks, <i>Ex Officio</i></p> <p><u>Members unable to attend</u> Mr. Lott Rogers Dr. Jerry Wallace</p>	<p><u>IALR Staff Present</u> Mr. Telly Tucker, President Dr. John Hughes, Executive Vice President of Operations Ms. Amanda Hylton, VP of Strategic Initiatives, Man. Adv. Ms. Pam Patterson, BOT Secretary & Executive Assistant</p> <p><u>IALR Staff Unable to Attend</u> None</p> <p><u>Guests</u> None</p>
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Call to Order / Confirmation of Quorum / Changes to the Agenda

Mr. Ben Davenport, Chair, called the meeting to order at 10:45 a.m. on Thursday, November 2, 2023. A quorum was present. There were no changes to the agenda.

Attendance of Committee Members by Electronic Communications Means

There was no attendance by electronic communication means.

Approval of Minutes

- **Motion** – Mr. Don Gibson made a motion to approve the Minutes from the August 3, 2023 meeting. Mr. Mark Holland seconded the motion. The motion was approved by unanimous vote.

Manufacturing Advancement Update

Ms. Amanda Hylton presented the Manufacturing Advancement narrative report (**Exhibit A**). Highlights from the report included:

NAVAIR Additive Manufacturing Training

- Training contract has been executed
- Equipment has been installed
- Curriculum scope of work is being finalized
- Anticipated start date of dedicated training is February 2024
- Will train 96 sailors and marines each year with 12 students per cohort every 6 weeks at scale

Accelerated Training in Defense Manufacturing (ATDM)

- Budget and Contracting
 - The ATDM 2.0 contract has been finalized and fully invoiced
 - ATDM 3.0 is underway with \$5.4M being invoiced to date of the full \$21.2M
 - \$7.1M expended to date
 - ATDM and Spectrum participated in an in-person Program Management Review with leaders from the IBAS (Industrial Base Analysis and Sustainment) program office in Falls Church, VA in August
- Recruitment
 - Increase in the number of applicants, with over 670 in the past three weeks, resulting in accelerated implementation of new processes – up-tick in recruitment thought to be due to the Roush Fenway Keselowski (RFK) Racing partnership with BlueForge Alliance- BuildSubmarines.com advertisements at NASCAR and NFL events
 - 1,016 active applications; 7,561 active leads/inquiries
- Training
 - 50 Students graduated on September 15, 2023, as part of the May cohort
 - July 2023 cohort started with 56 students - will graduate on November 7, 2023
 - October 2023 cohort started with 93 students
- Industry Engagement
 - Additional processes being developed to support an increase in the number of participating companies
 - 24 companies participated in the Workforce Connection event held in August and 25 participated during the event held on October 11, 2023
- Staffing
 - A request to realign staffing has been submitted to better align to current and future identified needs
 - Instructional staff successfully transitioned from Danville Community College to IALR on August 1, 2023

Center for Manufacturing Advancement

- Complete integration of the Industry 4.0 lab is anticipated for Mid-December
- The Quality Management System (QMS) has been completed and implemented

- CMA is now ISO 9001:2015 compliant
- Large scale X-ray cabinet has been installed in CMA Bay #1 to support the Additive Manufacturing Center of Excellence (AMCOE) activity. This equipment will be operated by Industrial Inspection and Analysis (IIA). This capability is the first of its kind in the region.

Additive Manufacturing Center of Excellence (AM COE)

- IALR will be on schedule to machine and inspect 26 AMCOE parts prior to December 31st, 2023.

Defense Manufacturing Community Support Program (DMCSP)

- Patrick & Henry Community College and Old Dominion University are in the final stages of approving an articulation agreement for the Manufacturing Engineering Technology degree pathway
- A whitepaper to outline the next phases of the DMCSP grant and Defense Manufacturing Community designation renewal is in development
- The next phase of funding is anticipated to be submitted June 2024
- America Makes (a National Additive Manufacturing Innovation Institute) is under contract to support the development of International Traffic in Arms Regulations (ITAR) and security awareness training modules to support defense manufacturing training

Integrated Machining Technology (IMT)

- The newest cohort started in August with 11 students
- The addition of the Robotics & Automation integration into the curriculum is underway
- A new IMT instructor has been selected and will begin on November 10

Specialized Training

- Dylan Hardy continues to work with the Haas Technical Education Community (HTEC) to deliver training
- 35 participants (duplicated) representing \$81,250 in total revenue, and \$65,000 in revenue for IALR
- Dylan Hardy held a workshop on Teacher Training at the HTEC Americas conference
- Amanda Hylton was elected to serve on the National HTEC member council

Dedicated Training Facility

- The Training Facility contract has been fully executed and a proposal has been submitted for additional funding to support the additional costs submitted by the contractor through the bid process
 - Total funded to date is \$56.9M
- Construction remains on schedule

Center for Manufacturing Advancement

- Hosted the Manufacturing Advancement Academy from Pittsylvania County Schools
- Brad Keselowski, Owner/Founder of Keselowski Advanced Manufacturing (KAM) is partnering to send employees for training

ATDM/AM COE Summit

- 464 attendees
- 25 companies participated in the Workforce Connections Events
- Speakers included:
 - Carlos Del Toro, U.S. Secretary of the Navy
 - The Honorable Chris Lehman, Chairman of the Board of the Landing Craft Support Museum Foundation
 - RADM Scott Pappano, Program Executive Officer, Strategic Submarines
 - Julian Purdy, Deputy Assistant Secretary – Policy U.S. DOL Veterans Employment and Training Services
 - Brad Keselowski, NASCAR Driver, Owner/Founder Keselowski Advanced Manufacturing
 - Don Hairston, General Manager of Austal USA Advanced Technologies
 - Livia Shmavonian, OMB Director of the new Office for “Made in America”

Staffing

- 22 new staff hired and onboarded
- 12 open positions

Key Highlights this Quarter

- Justin Owen, ATDM CNC Instructor, was selected to participate in Leadership Southside
- ATDM staff visited Curtiss-Wright, Newport News Shipbuilding, Fairlead, Scot Forge, Machine Specialties, BWX Technologies (Indiana) and AMG
- ATDM and Manufacturing Advancement staff have supported ten company visits this quarter
- James Hubbard and Amanda Hylton served on a national additive manufacturing panel at “America Makes” Members Meeting & Exchange (MMX) to represent the Defense Manufacturing Community Support Program (DMCSP).

Open Discussion of Concerns, Issues, and Observations

➤ Haas Long-Term Automation

Mr. Tucker stated that Haas is going to discontinue their program allowing equipment to be housed in training facilities at no cost. The current arrangement is that IALR pays for shipping and Haas entrusts IALR with the equipment for 18-24 months and then replaces it with newer equipment. A request has been made for one-to-two year’s notice so that IALR can plan how to finance the equipment and make other arrangements. Mr. Troy Simpson is participating in the negotiation based on his long-standing relationship with Haas.

Adjournment

Mr. Davenport adjourned the meeting at 11:42 a.m.

Minutes Recorded By:

Minutes Approved By:

Pam Patterson
BOT Secretary

Mr. Ben Davenport, Chair
Advanced Manufacturing Committee

Date

Date

Attachments Included as Official Part of Minutes

Exhibit A - Manufacturing Advancement Narrative Report

DRAFT

Manufacturing Advancement Report
Amanda Hylton, VP Strategic Initiatives
Tim Robertson, COO
January 30, 2024

Personnel Updates:

- ATDM
 1. David Gauldin – Metrology Instructor
 2. John Smith – ATDM CNC Machining Technician
 3. Autumn Turpin – Welding Technician
 4. Makayla Baker – Welding Technician
 5. David Deese – CNC Instructor
 6. Cheryl Terry – Deputy Director for Training and Technology
 7. Wesley Cifers – Promoted to CNC Lead
- CMA
 1. Brandon Holder – Manager, Digital Manufacturing
 2. Jonathan Hankins – Machinist I
 3. Trent Oswald – CNC Machinist II
- Manufacturing Advancement
 1. Daniel Hyler – NAVAIR Additive Manufacturing Instructor
- Open Positions
 1. EVP, Manufacturing Advancement
 2. ATDM NDT Instructor – 2 positions
 3. ATDM NDT Lab Technician
 4. ATDM Recruitment Specialist
 5. ATDM Welding Instructor
 6. ATDM CNC Machining Instructor
 7. ATDM Applications Support
 8. ATDM Metrology Technician
 9. ATDM Additive Manufacturing Technician
 10. NAVAIR Additive Manufacturing Technician
 11. CMA Process Engineer

Accelerated Training in Defense Manufacturing

- Budget and Contracting
 - ATDM 3.0 is underway with \$8.8M being invoiced to date of the full \$21.2M
 - \$10.3M expended to date
 - The RTC contract has been fully executed and a proposal has been submitted for additional funding to support the additional costs submitted by the contractor through the bid process
 - Total funded to date is \$56.9M
 - A 5-year development plan to support an RFP proposal for ongoing funding for ATDM is in development

- Tiger Teams
 - Small, functional teams have been established in key areas to support ATDM programmatic and strategic activities. Each team has a lead and is comprised of members across IALR and supporting partners
 - The Tiger Teams have had initial meetings, determined key questions to focus on, and are working towards developing timelines for executing activity
- Staffing
 - The staffing realignment proposal was approved. This will help to better align staffing to current and future identified needs
- Recruitment
 - New processes are continuing to be explored and implemented to support the increased activity
 - 715 active applications; 8,326 active leads/inquiries
- Training
 - 53 Students graduated on November 7, 2023, as part of the July cohort
 - The November cohort started with 79 students
- Industry Engagement
 - Additional processes being developed to support an increase in the number of participating companies
 - 15 new companies were engaged during this quarter
 - 31 students were placed in SIB/DIB jobs in November and December
- Student Services
 - Engaged with multiple community organizations this quarter to provide 75 bags of food to students and held a Thanksgiving meal for students sponsored by American National Bank
 - Held meet and greet for new students as well as a holiday gathering
 - Supported 129 unique student service needs
- Dedicated Training Facility
 - Construction remains on schedule

NAVAIR Additive Manufacturing Training

- New equipment training has been completed, software training at 90%, and curriculum development at 80%
- Start date is February 20, 2024
- Will train 96 sailors and marines every year with 12 students per cohort every 6 weeks at scale
- Through work with NAVAIR, an additional 2-week training option has been added for sailors that are unable to step away from current duties for full program duration.
- The
-
- Program has been officially named as Naval Aviation Schoolhouse for Additive Manufacturing (NASAM) by the US Navy.

Defense Manufacturing Community Support Program (DMCSP)

- New ODU lecturer began on January 2 at IALR. He will be responsible for teaching students in the ODU program remotely and promoting the program to students in the region
- Total student enrollments to date: 357 students in ODU coursework leading to MfgET degree; 185 in Danville Public Schools 9th and 10th grade programs; 144 in Pittsylvania County Schools 9th and 10th grade programs and welding; 8,153 impacted by GO TEC expansion efforts; 16,451 students and educators impacted by 380 outreach visits at VSU
- The team received approval to expand the 9th and 10th grade curriculum to Henry County Schools with unused funds from the DPS and PCS project
- Patrick & Henry Community College and Old Dominion University are in the final stages of approving an articulation agreement for the Manufacturing Engineering Technology degree pathway
- The Office of Veterans and Defense Affairs continues to work to coordinate a visit from the new federal program manager
- A whitepaper to outline next phases of the DMCSP grant and Defense Manufacturing Community designation renewal is in development
- The Secretary of Veterans and Defense Affairs has requested to visit IALR in March to discuss next steps for DMCSP
- America Makes is under contract to support the development of ITAR and security awareness training modules to support defense manufacturing training

Center for Manufacturing Advancement

- Butch Kendrick and Brandon Holder continue integration in the Industry 4.0 lab. Butch has been working with Mitutoyo on innovation, automated fixturing solutions.
- Jeremiah Williams led the upfit, installation, and training efforts for IALR's most sophisticated CNC equipment to date. The DMG NLX2500 represents a new capability in the IALR equipment list that will be very attractive for industry looking toward optimization work.
- IALR has procured its first pieces of additive manufacturing equipment to support the Industry 4.0 lab, CNC Innovation Lab, and Metrology Lab. Through work with the EDA, IALR was able to repurpose EDA grant savings to purchase a Markforged X7 and Stratasys F370CR.
- Led by Kevin Thompson and Alber Riner (consultant), IALR has completed all initial development and implementation for the CMA Quality Management System. IALR is currently exercising the system and collecting data. An initial ISO audit is scheduled for late February. Jeremiah Williams has been named Quality Manager.

Additive Manufacturing Center of Excellence (AM COE)

- IALR has processed 13 parts through the CNC Innovation Lab for the US Navy
- IALR, in partnership with Master Gage and Tool and Mitutoyo, has conducted 40 inspections in the metrology lab
- An additional 40 parts for the US Navy are in various stages of production
- AMCOE team members were able to respond to a "quick turn" part production requested by the US Navy. This quick turn part production resulted in the on-time deployment of a Navy warfighting asset out of San Deigo

Specialized Training

- IALR specialized training staff will be conducting an offsite training for Haas Automation in March
- Amanda Hylton was selected to represent IALR on the National HTEC Council

Integrated Machining Technology

- IALR has been working in close coordination with DCC to ensure the successful onboarding of Brandon Ferguson, IMT instructor.
- Robotics & Automation integration will be supported in the CMA Industry 4.0 lab starting in March 2024. Butch Kendrick is leading this effort. This is a substantial step forward for the Integrated Machining Tehcnology Program.
- IALR has worked closely with Melissa Mann (Dean of Workforce Services) and Dr. Johnson (VP of Academics) at DCC to give a historical perspective of the importance of the Integrated Machining Technology Program. A regular meeting cadence between IALR and DCC leadership has been established to ensure program alignment.

Key Highlights this Quarter

- ATDM and Manufacturing Advancement staff have supported three company visits, hosted 44 companies on site for Workforce Connection events, and visited three companies this quarter
- Amanda Hylton served on a panel focused on getting underserved populations into advanced manufacturing at the Defense Manufacturing Conference in Nashville, TN in December

Contributions to the Strategic Plan

- **Accelerated Training in Defense Manufacturing**
 - Center of Excellence for Education & Workforce Development – ATDM is the pilot for a national network of accelerated training programs aimed at reducing “time-to-talent” for the defense industrial base (DIB) and filling critical skills gaps in defense manufacturing. As a national-in and national-out training platform, it partners with recruiting sources and industries nationwide
 - Globally Competitive Ecosystem – ATDM provides a robust level of industry engagement that allows industry to send students for training and place students in employment. As with previous models, such as Integrated Machining Technology, it has been shown that industry is interested in locating near training facilities to recruit workers at velocity and scale, which ATDM will produce. These trained individuals will support a workforce pipeline that will make the region more globally competitive
 - Collaborative Team Success – ATDM relies on external partnerships with recruitment sources, job placement entities, industry and technology partners. The multiple subcontractors involved in making the training a success provide opportunities to collaborate with other internal divisions

- **Defense Manufacturing Community Support Program**
 - Virginia's Go-To Partner for Business and Economic Growth – DMCSPP supports the Virginia Maritime Industrial Base Consortium (VMIBC) as a leading hub for developing skilled workers and the engineering workforce for the maritime industry in Virginia; supports local, regional, state, and national economic development through the designation as a Defense Manufacturing Community (DMC) and the collaborative partnerships created through the VMIBC; IALR serves as the convener of partners to execute the DMCSPP grant, providing the ability of IALR to be the go-to partner for the Virginia Department of Veterans and Defense Affairs in developing and enhancing workforce development pipelines that support Virginia's business and economic growth plans
 - Center of Excellence for Education & Workforce Development – DMCSPP supports education & workforce development through the DMC ecosystem which provides a K-12 to university and beyond workforce training system. This includes career connections, high school, community college, university and adult learner options for training students to support the Virginia maritime industry. DMCSPP creates a pipeline for manufacturing engineering technologists and provides continuous improvement into training programs that rely on industry needs. The mission of the VMIBC (the designated DMC community) is to increase manufacturing capacity, capability, resiliency, and diversity in the maritime industrial base by creating a cross-region K-12 to university training pipeline for skilled workers and

manufacturing engineers

- Globally Competitive Ecosystem – DMCSPP advances and connects businesses in the region through a strong collaborative network of industry, government and academia. DMCSPP will increase the supply of skilled labor and manufacturing engineers that will help to close manufacturing skills gaps, address manpower shortages, build manufacturing capacity and capability, and modernize the workforce to enable the industrial base to fully support the Navy's sustainment and shipbuilding needs. This will position the Commonwealth to be globally competitive in attracting manufacturing industries that are aligned to the skills within the pipeline
- Collaborative Team Success – DMCSPP strengthens collaborative, regional education partnerships (ODU, P&HCC, Virginia State University and K-12 school divisions in Southern Virginia and Hampton Roads) and supports internal collaboration through the integration and expansion of GO TEC into the Hampton Roads region through the DMCSPP partnership
- **Center for Manufacturing Advancement**
 - Virginia's Go-To Partner for Business and Economic Growth – The CMA supports Virginia manufacturers in their pursuit of manufacturing optimization and innovation. The CMA offers technical expertise, lab space, equipment and a collaborative environment to help existing and new Virginia manufacturers increase productivity that has direct economic impact. The CMA serves as a centralized resource of emerging, production ready technologies to help drive the success of Virginia manufacturers. The US Navy AM Center of Excellence within the CMA is expected to support additional companies in their ability to produce AM parts for Navy submarines, including companies in Virginia
 - Center of Excellence for Education & Workforce Development – Through efforts connected with ATDM, the CMA's AM COE will connect ATDM graduates with Additive Manufacturing (AM) jobs directly related to the Submarine Industrial Base (SIB). These connections will support the recruitment and placement efforts of ATDM. These connections will also support the US Navy and the SIB's effort to modernize the workforce and prepare for increasing AM production
 - Globally Competitive Ecosystem – The CMA will allow businesses in Virginia to be globally competitive through innovations in current and new manufacturing processes. The AM COE at CMA will also support a globally competitive ecosystem through development of innovative additive manufacturing strategies, technical data and processes
 - Collaborative Team Success - The CMA serves as the go-to hub for manufacturing advancement and innovation for Virginia businesses and beyond. The CMA will bring internal and external partners together to form a cohesive group of manufacturing experts, technical partners, business leaders and government officials. These partnerships and collaboration will drive the projects and programs at the CMA. The

projects and programs will lead to positive return on investment for IALR and project partners. Revenue generated through CMA projects will help support the Manufacturing Advancement division as a whole and help provide the required resources to remain industry relevant and globally competitive

- **Specialized Training**

- Virginia's Go-To Partner for Business and Economic Growth – As one of four HTEC training centers in the country, IALR serves as the Go-To teacher training facility for Virginia
- Center of Excellence for Education & Workforce Development – The mission of HTEC is to provide a collaborative space in which we collectively develop, deliver, and disseminate the best educational methods and techniques for CNC education in the world. The goal is to drive the upskilling of manufacturing educators, and transform CNC classrooms into modern, high-tech advanced manufacturing labs that both encourage students to seek successful careers in CNC and related fields and ensure that these students are well-equipped when they enter the field. The goal of specialized training within the manufacturing advancement department is to be the Go-To training provider on CNC and related machine technologies, including the upcoming Industry 4.0 integrations within the CMA
- Globally Competitive Ecosystem – As a partner for the HTEC network and Phillips Corporation, the training facility at IALR serves as a global benchmark as Haas expands into other countries and provides the potential to be a train-the-trainer provider for global Haas activity

- **Integrated Machining Technology**

- Virginia's Go-To Partner for Business and Economic Growth – IMT has supported extensive business and economic growth in the region by highlighting the ability of the region to train a workforce that can meet demands at multiple levels, from the work floor technician to front line management and beyond. The IMT program is the advanced level training and culmination of the workforce pipeline that begins in middle school. It has been identified as one of the reasons that multiple companies have located in the region and has been the catalyst for allowing IALR to support these companies through rapid launch space and concierge services
- Center of Excellence for Education & Workforce Development – The IMT program has been a national benchmark for advanced training in CNC machining for years and delegations from multiple states and countries have visited to learn more about how to execute similar programs. The continuous improvement and adoption of current technology allows this program to support the strategic goal of being a center for excellence for education & workforce development
- Globally Competitive Ecosystem – Technology in manufacturing is rapidly evolving. Providing relevant training in support of industry needs

is critical as technology and processes continue to modernize. It is a key factor in providing a globally competitive ecosystem. IMT supports this goal by remaining at the forefront of technology and training and ensuring that students can enter the workforce and provide innovative solutions to workforce challenges

- **Additional Contributions to the Strategic Plan**

- Excellence in Board Leadership - All projects strive for transparency with the Board by providing needs, successes and areas of support required that allow the board to serve as community champions, share successes and stories and support public and private funding support which promotes excellence in board leadership as the board carries out these strategic activities
- Strategic Expansion of Applied Research and Culture of Learning - The Manufacturing Advancement division encapsulates a culture of learning in all projects. It fosters innovation and encourages continued efforts to remain current on the knowledge of existing and emerging