

# SIMLOG

The Standard in Cost-Effective Simulation  
for Training Heavy Equipment Operators

***Combining Heavy Equipment Simulators and  
Standardized Curriculum for Heavy Equipment  
Operators – Hunterdon Polytech, NJ***

# WHAT IS NCCER?



- Not-for-profit Education Foundation
- Created in 1996 as *The National Center for Construction Education and Research (NCCER)*
- Support of more than 125 construction executive, association and academic leaders
- Revolutionized construction industry training

## Mission:

To build a safe, productive and sustainable workforce of craft professionals.



NCCER Headquarters: Alachua, FL

# NCCER OFFERS...

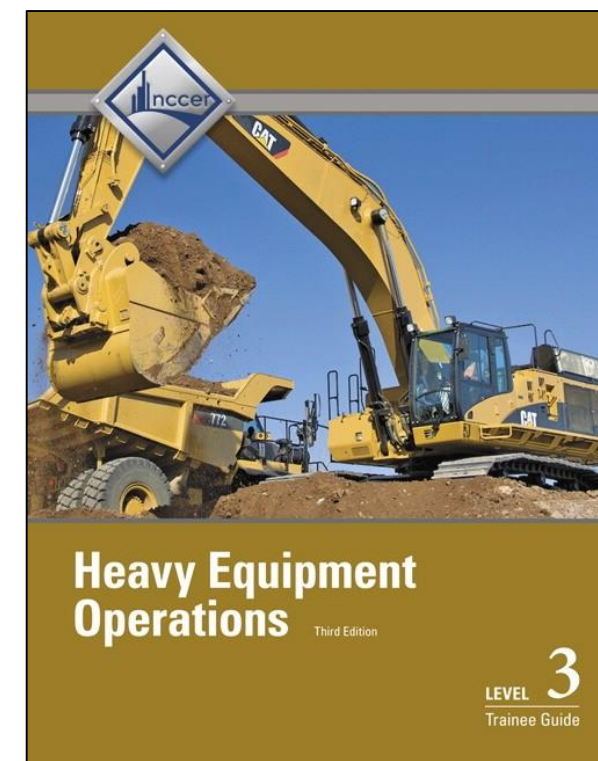
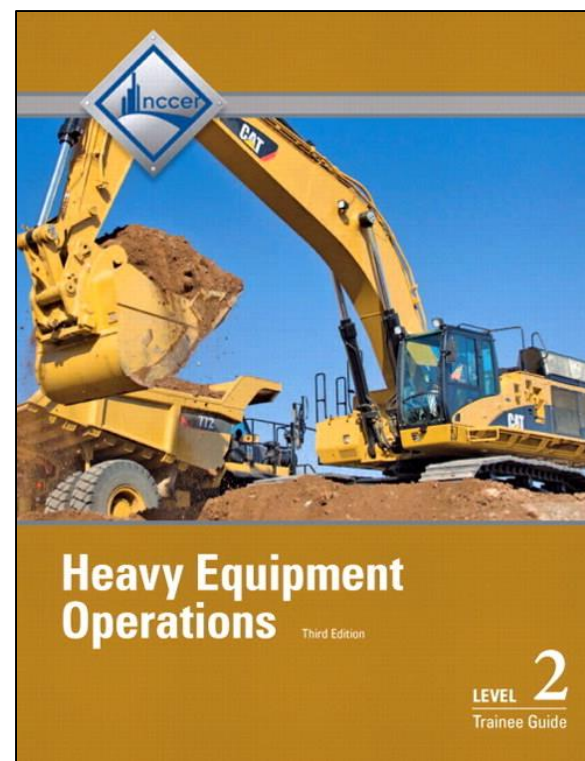
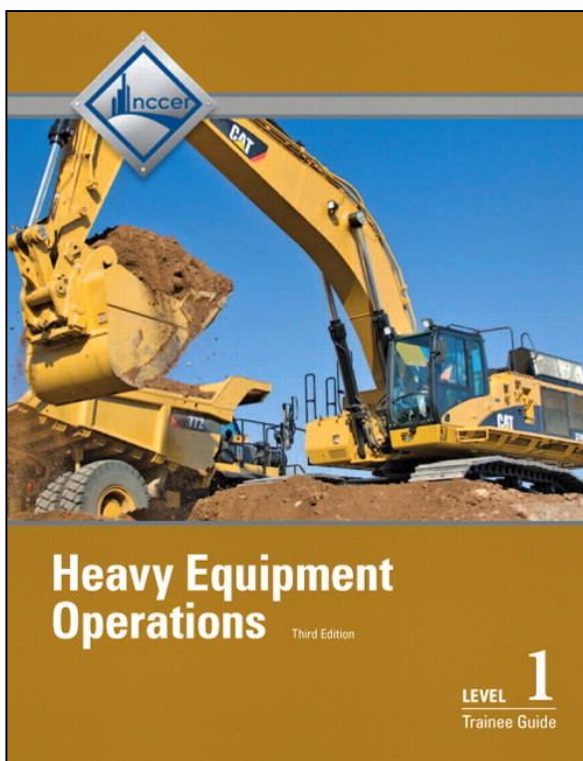
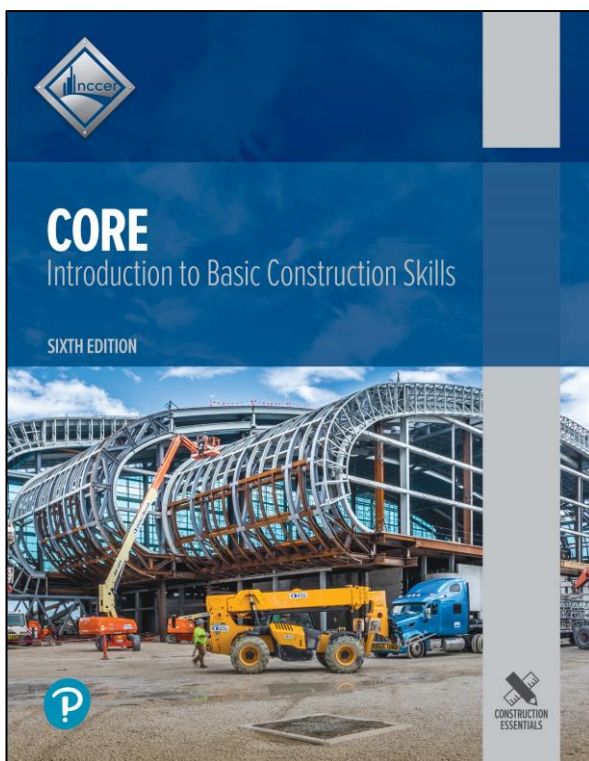


- Standardized Construction Craft Training
- Written and Performance Exams
- Portable Industry Recognized Credentials
- Meets DOL Apprenticeship Requirements (Classroom Based Component)
- Seamless transition into industry
- Journey Level Craft Assessments (industry)





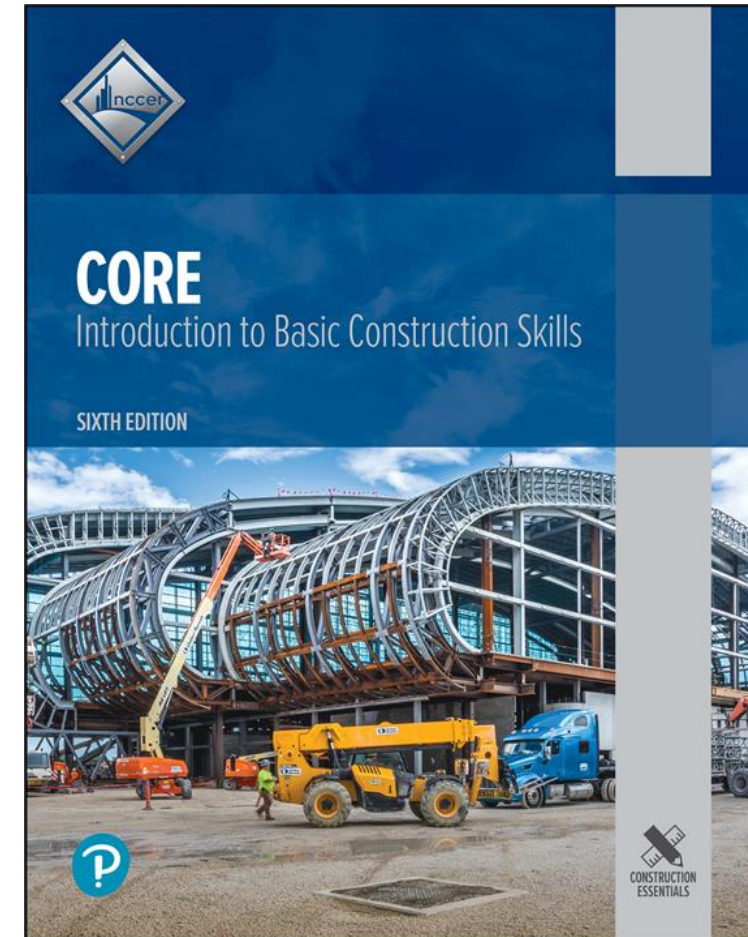
# NCCER'S HEO CURRICULUM SERIES



# NCCER Core Curriculum and Credentials



- 1.) Basic Safety (Construction Site Safety)
- 2.) Introduction to Construction Math
- 3.) Introduction to Hand tools
- 4.) Introduction to Power Tools
- 5.) Introduction to Construction Drawings
- 6.) Introduction to Basic Rigging
- 7.) Basic Communication Skills
- 8.) Basic Employability Skills
- 9.) Introduction to Materials Handling

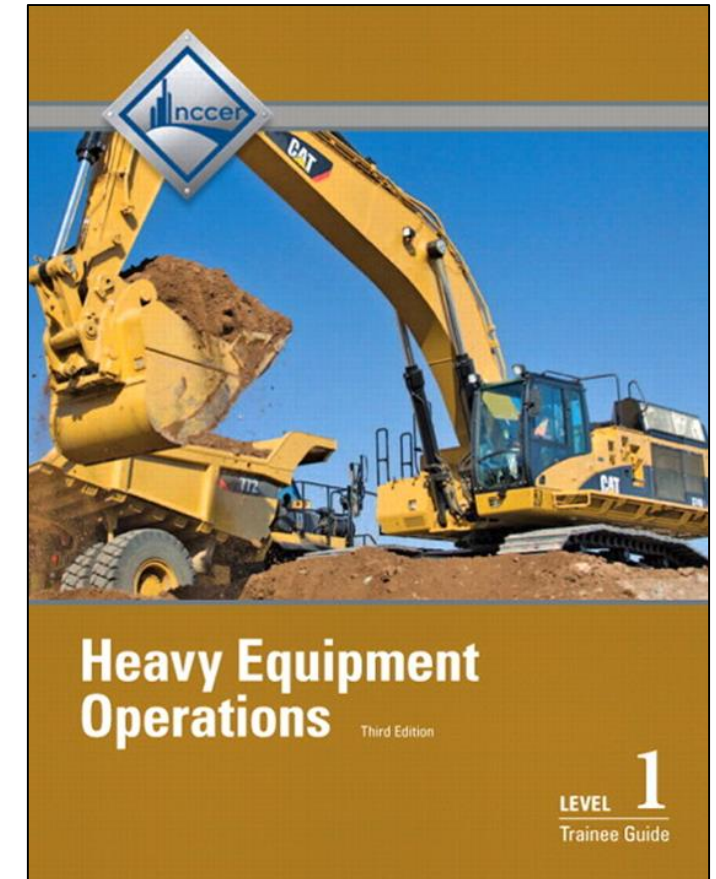




# NCCER HEO LEVEL 1



- 1.) Orientation to the Trade
- 2.) Heavy Equipment Safety
- 3.) Identification of Heavy Equipment
- 4.) Basic Operational Techniques
- 5.) Utility Tractors
- 6.) Introduction to Earthmoving
- 7.) Grades
- 8.) Vertical-Mast Sit-Down Counterbalance Forklifts



## ***Heavy Equipment Operator Training Program: Hunterdon County Polytech (NJ)***

- ▶ Instructor, Richard Hubert was inspired to bring a practical need to his communities Vocational Technical School in Northern NJ
- ▶ CTE Administrator, Jennifer Calvelli collaborated with Local 825 of the International Union of Operating Engineers (IUOE) to support this effort along with the NJ DOL & DOE
- ▶ Program includes secondary, post-secondary, and adult education components to serve multiple stakeholders
- ▶ Industry partners: *Hunterdon Excavating, Land Improvement Contractors Association, Union Locals (IUOE 825, etc.), Air National Guard*



HUNTERDON COUNTY  
**POLYTECH**  
CAREER & TECHNICAL

APPLY  
TODAY! >>>

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## HEAVY EQUIPMENT OPERATOR PROGRAM

### General Information

[Staff](#)

[Photos](#)

Instructor:

[Richard Hubert](#)

[rhubert@hcvsd.org](mailto:rhubert@hcvsd.org)

908-284-1444 ext. 2123

### APPLY NOW



This two-year shared-time program is the first of its kind in New Jersey for high school students. HEOP is designed to provide students with hands-on training opportunities through the use of heavy equipment simulators. Students will learn how to operate various pieces of construction equipment including backhoes, dozers and excavators. Hands-on training will be supplemented with classroom instruction from the National Center for Construction Education Research (NCCER) curriculum for Heavy Equipment Operations. First-year students will learn basic heavy equipment safety and orientation to the trade, identification of equipment, basic operational techniques, introduction to earth moving and grades. Students will receive OSHA 10 Safety Certification and NCCER Heavy Equipment Operations Level 1 certifications. Second-year students will learn about on-road dump trucks, scrapers, loaders, rough terrain forklifts, excavation math, interpreting civil drawings, site work, skid steer and soils. Students will receive forklift and NCCER Heavy Equipment Operations Level 2 Certification.

#### AVAILABLE COURSES:

[Heavy Equipment Operator Program I](#) 20 credits (Central Campus)

[Heavy Equipment Operator Program II](#) 20 credits (Central Campus)

*Prerequisites:* Heavy Equipment Operator Program I

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## ***Hunterdon CVTS's NCCER Accreditation Journey...***

- *HCVTS became an NCCER Accredited Training Sponsor (ATS) in 2018 after completing the accreditation application and Master Trainer Certification processes.*
- *The CTE school district offers adult ed/post secondary components, along with secondary “feeder” schools, and partnerships/linkage to industry.*
- *There is a Master Trainer, who in turn certified local faculty as Certified Craft Instructors. This process enhances teaching techniques using NCCEER curriculum and testing requirements – resulting in **student attainment of Industry Recognized Credentials!***

## Hunterdon CVTS's Secondary Program at a Glance...

- Completed 3 full years and is into the 4<sup>th</sup> year for 2021-22 SY
  - *Is specific to students grades 11 & 12, who must apply and be accepted into the full 2 year commitment*
- Has grown progressively since inception!
  - *2018-19: 6 students*
  - *2019-20: 16 students*
  - *2020-21: 19 students*
  - *2021-22: 25 students*
- Cohorts conducted 5 days/week, 2-hour blocks, with an A.M. & P.M. class
- Non-traditional applicants include 3 female students for the 2022-23 SY!

## Hunterdon CVTS's Secondary Program at a Glance...

### ► Simulator-based preparation

- Grade 11: *more simulator time in the first year (approx. 40% of time)*
  - *Gain familiarity of operator controls (pedals, levers, joysticks, etc.)*
  - *Develop muscle and reflex memory*
  - *Includes 9 weeks of NCCER Core curriculum & 27 weeks of NCCER HEO Level 1*
- Grade 12:
  - *More time on actual equipment using NCCER HEO Level 2*
  - *Focus on specific task based simulator time*

### ► Then on to real equipment

- Backhoe Loader, Mini-Excavator, Skid Steer Loader, Dump Truck, Utility Tractor
- Grade 11: *less than Gr 12, approx. 2-3 hours week*
- Grade 12: *more "seat time on iron" 4-6 hours, including small projects around school grounds/neighbor property.*



## Hunterdon CVTS's Simulator Lab

Nine simulator stations  
(9 computers), plus  
Instructor's Station



## ***Simulator Setups with 8 Tabletop Replica Controls and 1 Operator Chair***



## In The Classroom & In The Field

- ▶ Simulator “sessions” are 45-60 minutes, with 45-60 minutes of instruction
- ▶ Students self manage, instructor tracks via Simlog Management System
- ▶ Students complete:
  - *One set of targets for Grade 11 (NCCER Core and HEO Level 1)*
  - *Grade 12 has more machine time, “special projects” at school/neighbors and HEO Level 2*
  - *Uses “targets” from Simlog, and “custom targets” as developed by the instructor*
  - *Ongoing “fine-tuning” of the program, to better blend NCCER component, simulator familiarization for instructors and coordinated use of real equipment*



## ***Simlog Prepares Students for Real Equipment!***



## The Outcomes

- ▶ To date, 41 program graduates (*not counting this school year*)
- ▶ Where are they now?
  - *Two have been direct hired by partner contractor*
  - *A few are preparing to join military/air guard as HE Operators*

## Hunterdon CVTS Adult Education Component

- ▶ First cohort started in the 2020-21 SY
- ▶ Currently enrolls 8 adult learners in the later p.m.
- ▶ Only men at present, employed or transitioning workers
- ▶ Same heavy equipment as the secondary school program
- ▶ Simulator-based preparation is similar to the secondary school program, more in the first portions of Core/L1, tapering with L2/L3
- ▶ The industry partners serve as an apprenticeship and training aggregator for smaller companies e.g. the Land Improvement Contractors Association



## Marketing and Recruitment at HCVTS

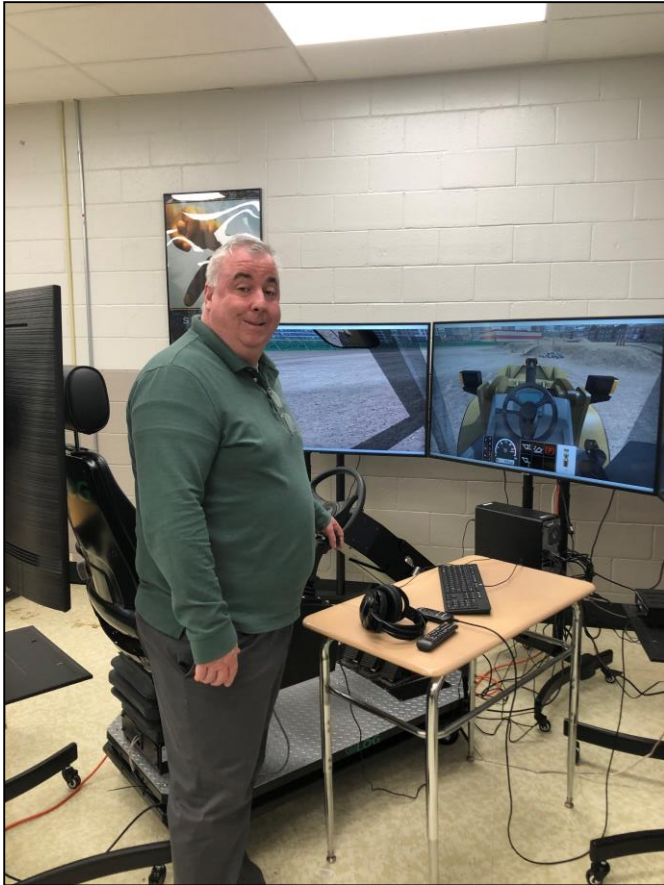
- ▶ **Word of mouth:** *Utilizes the districts social media arm to post photos, news etc. as supplied by instructors or industry partners*
- ▶ **Visits to local middle schools:** *regular recruitment to and visits from Middle school feeders*
- ▶ **Presentations to local industry associations:** *Have built partnerships and continue to develop partners with expressed need*
- ▶ **Open house:** *Events hosted every semester to the students & GP*
- ▶ **Official School Website:** *HCVTS official website provides detailed information about program/opportunities*

## Hunterdon Polytech Inspires NJ Adoptions: Ocean County Vocational Technical School



- ▶ Local Paving and Excavating Contractors in Ocean County Area Had Demand for Skilled Talent in a Challenging Workforce Environment.
- ▶ Earle Construction Provided Funds to Assist With Purchasing Simulation Labs
- ▶ Jobs Await Motivated Students
- ▶ Local Needs/Local People=Win/Win

## Passionate Instructors Make the Difference!



- ▶ OCVTS HEO Instructor, Joe Moore possesses a college degree in engineering and has worked a lifetime in Paving and HEO world!
- ▶ Wants to pay forward the rewarding career and opportunity he has had!
- ▶ NCCER Certified Instructor



## OCVTS's Simulator Lab

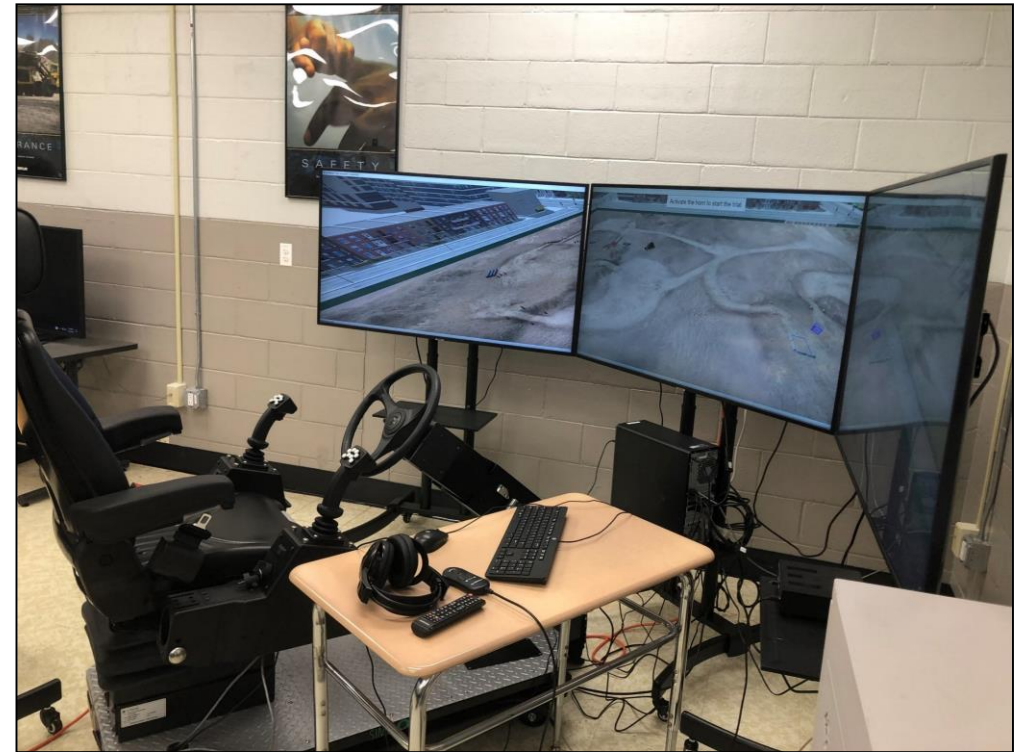
Twelve simulator stations  
(12 computers), plus  
Instructor's Station



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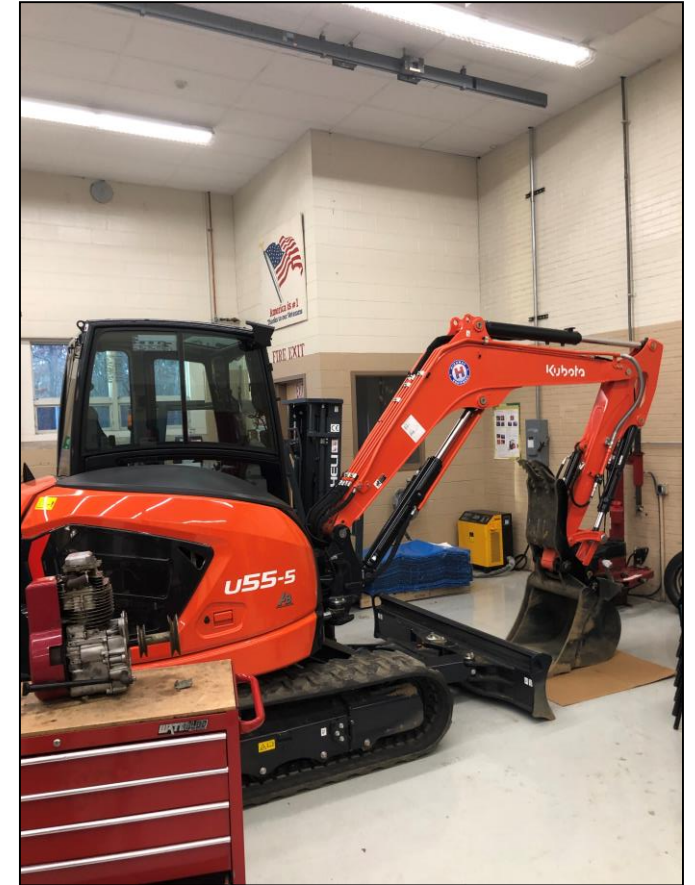


## Simulator Setups with 8 Tabletop Replica Controls and 4 Operator Chairs





## Ocean County Acquires Equipment & Partners





## Partner In-Kind Donations



- Generous gifts from local partners give students exposure to machines they might not otherwise have at their disposal
- Older equipment provides experience with repairs and familiarization to mechanics





## Passionate Partners Are All the Difference!

- ▶ **The Earle Companies**
- ▶ **Eosso Paving**
- ▶ **Terminal Construction**
- ▶ **Esposito Construction**
- ▶ **Ocean Builders Association**

