Advancing Student Experience: 'A collaborative effort'

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October 28, 2026

Wim F.A. Steelant

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The Holistic Student Experience is Blending of Experiences Gained Inside and Outside of the Classroom

Academic Affairs + Student Affairs

In-class experience
Dynamic, High Engaged, Interactive Teaching & Learning
Hands-on/Early-on, Undergrad Research, Capstone, Senior Thesis,…

Outside the class experience
Co- & Extra-Curricular activities, Research, Competitions, Internships and Coops, Community Engagement, …

Holistic Student Experience Impact
Increased retention, completion, career readiness, job placement or continued education, Community Impact, Visibility, Enrollment,…

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<u>In-class experience</u>

Dynamic, High Engaged, Interactive Teaching & Learning, Programmatic Offerings, Hands-on, early-on, undergraduate research, capstone, senior thesis,...

What do we need to be?

This has a direct impact on:

- In-class retention/completion
- Overall student retention/completion
- Eventually enrollment

Measurable & actionable by looking at DFW-rates

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Personal experience examples of Dynamic, hands-on teaching at NMT

Incorporated beer brewing in Biochem 441 Lab

Converted Biochem 442 Lab into a research lab

ONCOLOGY REPORTS 17: 1487-1492, 2007

SPANDIDOS PUBLICATIONS

Effects of crude aqueous medicinal plant extracts on growth and invasion of breast cancer cells

SEVERINE VAN SLAMBROUCK[1*], AMBER L. DANIELS[1*], CARLA J. HOOTEN[1], STEVEN L. BROCK[1,2], AARON R. JENKINS[1], MARCIA A. OGASAWARA[1], JOANN M. BAKER[1], GLEN ADKINS[1], EERIK M. ELIAS[1], VINCENT J. AGUSTIN[1], SARAH R. CONSTANTINE[1], MICHAEL J. PULLIN[2], SCOTT T. SHORS[4], ALEXANDER KORNIENKO[3] and WIM F.A. STEELANT[1]

Laboratories of [1]Biochemical and Biomedical Research, [2]Aqueous Environmental Chemistry, [3]Synthetic Organic and Medicinal Chemistry, and [4]Virology, Department of Chemistry and Biology, New Mexico Tech, Socorro, NM, USA

Received December 7, 2006; Accepted January 22, 2007

- Hands-on out of the box
- Students were engaged
- Undergraduate students involved in research
- 100% retention, 0 DFW's
- Students wanted to take the lab
- Interdisciplinary (!) + Conference presentation

NMT Innovative Teaching Award
$20,000 to support this project

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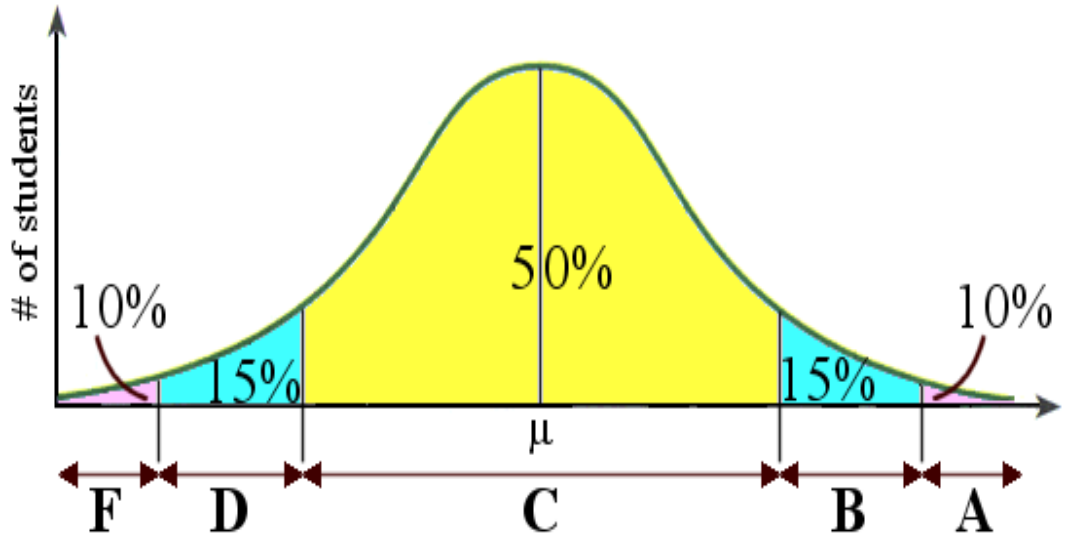
 # D's, #F's and Withdraws have a direct impact on retention, completion and graduation rate

Measurable & actionable

Personal experience example: STEM College initiative of reducing the DFW's at Youngstown State University

1. Adopting a base-line grade distribution



Modified grade distribution Curve

Normal grade distribution:
D-F grades and W: 25% & A-B: 25%

➔ ≤ 25% DFW

- Is the upper-limit
- Room for improvement

➔ > 25% DFW

- Is indicating a serious issue
- Warrants investigation

2. Target and Mechanics to improve DFW rates

Data-Driven

1

Analyze, per faculty, DFW rates per semester /course

2

Every Spring semester, the Dean will meet will each department chair regarding faculty in the department

3

Chairs/faculty establish a plan of improvement for DFW rates. Goal is to lower by 5% next AY.

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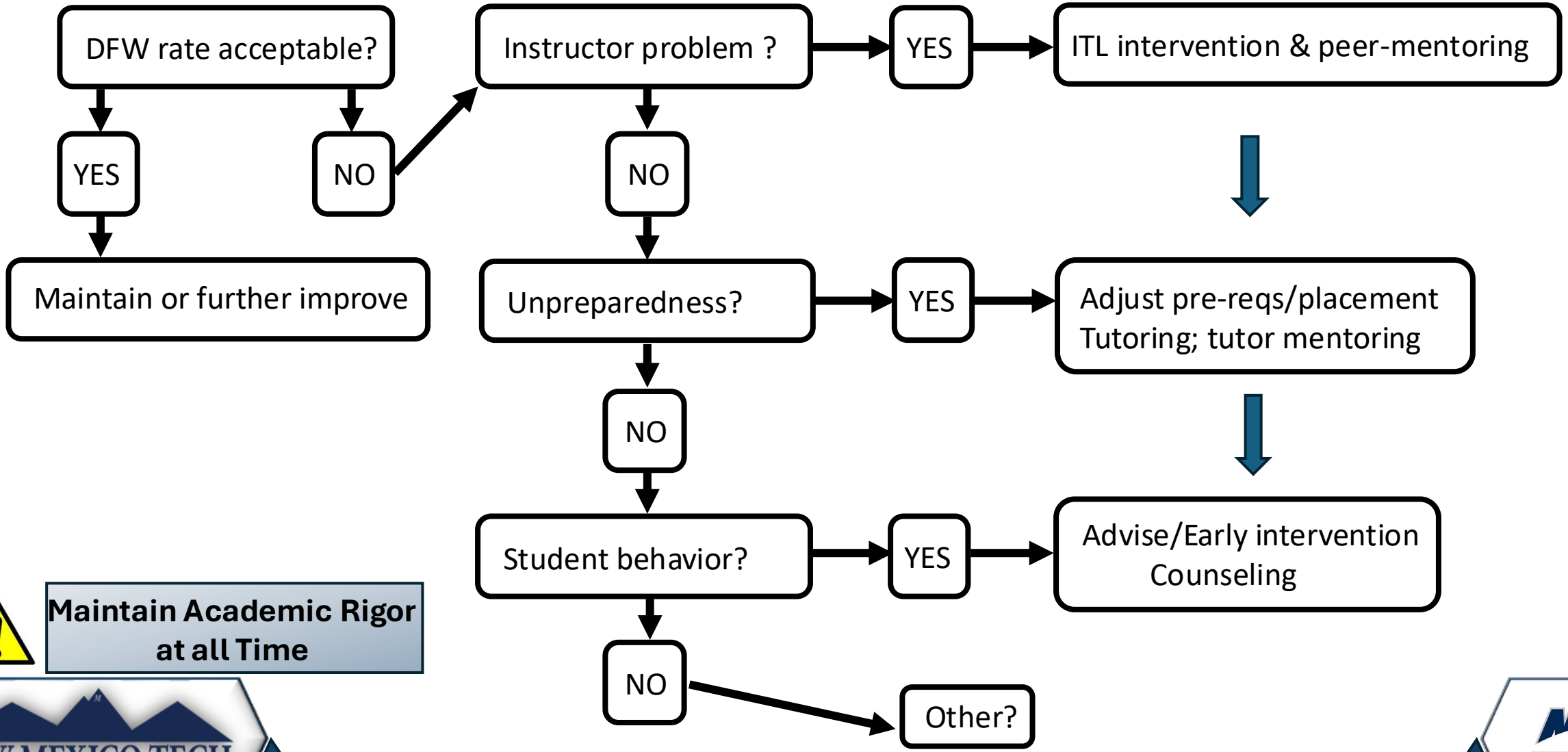
3. Flow chart example of anticipated issues

Working together
Mutli-unit approach



Maintain Academic Rigor at all Time

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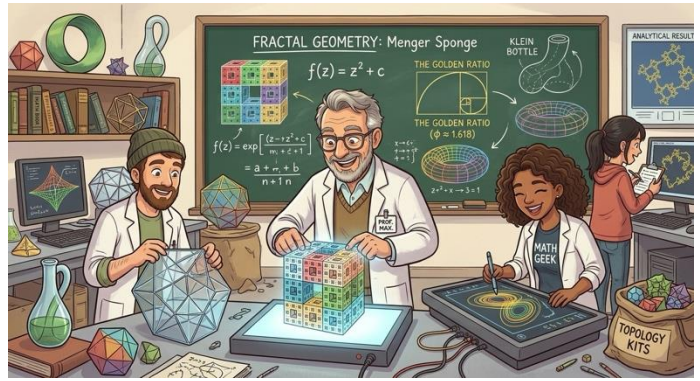
4. Impact of this initiative on Mathematics



		DFW Rates (%)				
		Fall 2018	**Fall 2019**	**Fall 2020**	**Fall 2021**	**Fall 2022**
College Algebra	**Math 1510**	**55**	26	21	17	7
	Math 1510 with C	**45**	36	42	35	31
Trigonometry	**Math 1511**	**49**	38			
	Math 1511 w/o C			31	30	7
	Math 1511 with C			43	41	48
Algebra	**Math 1513**	24	20	21	12	9
Applied Business Calculus	**Math 1552**	25	19	29	32	31
Calculus 1	**Math 1571**	**39**	30	29	41	34
Calculus 2	**Math 1572**	**32**	31	23	48	45
Quantitative Reasoning	**Math 2623**	25	23	20	13	8
	Math 2623 with C	**26**	13	17	23	22
Calculus 3	**Math 2673**	19	**32**	22	42	18
Diff Equations	**Math 3705**	21	28	3	33	12

Fall 2018 we had serious issues
Fall 2019 we saw improvement, except Calc 3
Fall 2020 'online' due to Covid
Fall 2021 post-covid impact
Fall 2025 continued trend and struggles
Fall 2026 ??? 72% incoming freshman are math unprepared

Problematic

Needs Improvement

Succes

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Personal experience example: STEM College Program and Enrollment Management

Example of enrollment management : MS CS

Program/Term	Fall '19	Fall '20	Fall '21	Fall '22	Fall '23	Fall '24
MS Computer and Information Systems	21	13	23	119	219	460

Collaborative effort in January 2021:

- Dean worked with the **faculty** to identify why the program was not attractive
- **IPO** helped with oversees recruitment and student support
- **Institutional Research** helped with data driven decisions
- **Office of Marketing** helped with recruitment videos
- **Student Affairs** helped with housing, dining, student support, counseling, conduct
- **Graduate office** helped with grad admissions (transcript review etc)

Student affairs
IPO, Marketing,
Graduate School
All reported to the Provost

Impact:

- Program was going to close!
- Able to hire multiple new faculty and staff to support this program
- Brought in millions of dollars

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Personal experience example: STEM College Program and Enrollment Management

Example of program management

- Some programs can not be saved due to low enrollment/Market demand
- ***Example: BE Metallurgy***
- In demand due to Steel Industry and collapse killed the program
- Converted with a focus on Materials and Advanced Manufacturing
- Less to no impact faculty and staff (IMPORTANT)
- ***Current example is the decline in CS enrollment due to AI***
- Converting to more supercomputing, cybersecurity and AI focused program
- Salvaging faculty and staff lines

Outside the class experience

Co- & Extra-Curricular activities, Research, Competitions, Internships and Coops, Community Engagement, ...

What do we need to be?

Key Words:

- Vibrant, Energetic
- Collaborative/Interdisciplinary
- Noticing a hidden STEM GEM
- Engagement

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Personal experience example: Support for Competition Teams

- Competition Teams had their tinker spaces scattered in corners of labs
- The YSU First lady donated a building that opened in December 2022

LOCAL NEWS

Youngstown State University unveils Watson Team Center

by: Gerry Ricciutti
Posted: Dec 9, 2022 / 12:32 PM EST
Updated: Dec 9, 2022 / 06:20 PM EST

Home of STEM Competition Teams

- Baja Team
- Battle Bots
- Human powered vehicle
- Rocket club
- Lunabotics
- Steel bridge team
- Concrete Canoe team

Personal experience example: Support for Internships and Coops

'STEM Professional Services'

- Focus on Internship, Coops, Job placement and alumni careers
- 130 companies, twice a year on campus for the STEM EXPO
- Responsible for 'First year destination reporting'
- 2020, 2022, 2026 1st Place National Intern of the year
- 2025 the Exec Director SPS was recognized by the State
- Same/similar to what NMT is doing

➔ Hands-on job experience
➔ Career readiness
➔ Visibility
➔ Measure of academic program quality

Personal experience example: Centers of Excellence

The Excellence Training Center
Youngstown State University

The Excellence Training Center at YSU – WEI Unit of STEM

Location:	360 W. Commerce Street, Youngstown, Ohio 44503
Size:	54,000 sq. ft.
Construction Funding:	$12.1 million ($7M State of Ohio, $5.1M US EDA/ARC)
Operational Funding:	$1 Million (Ohio Dept. of Higher Ed)

➔ Part of the Youngstown Innovation Hub in Aerospace and Defense
➔ Focus on Advanced Manufacturing

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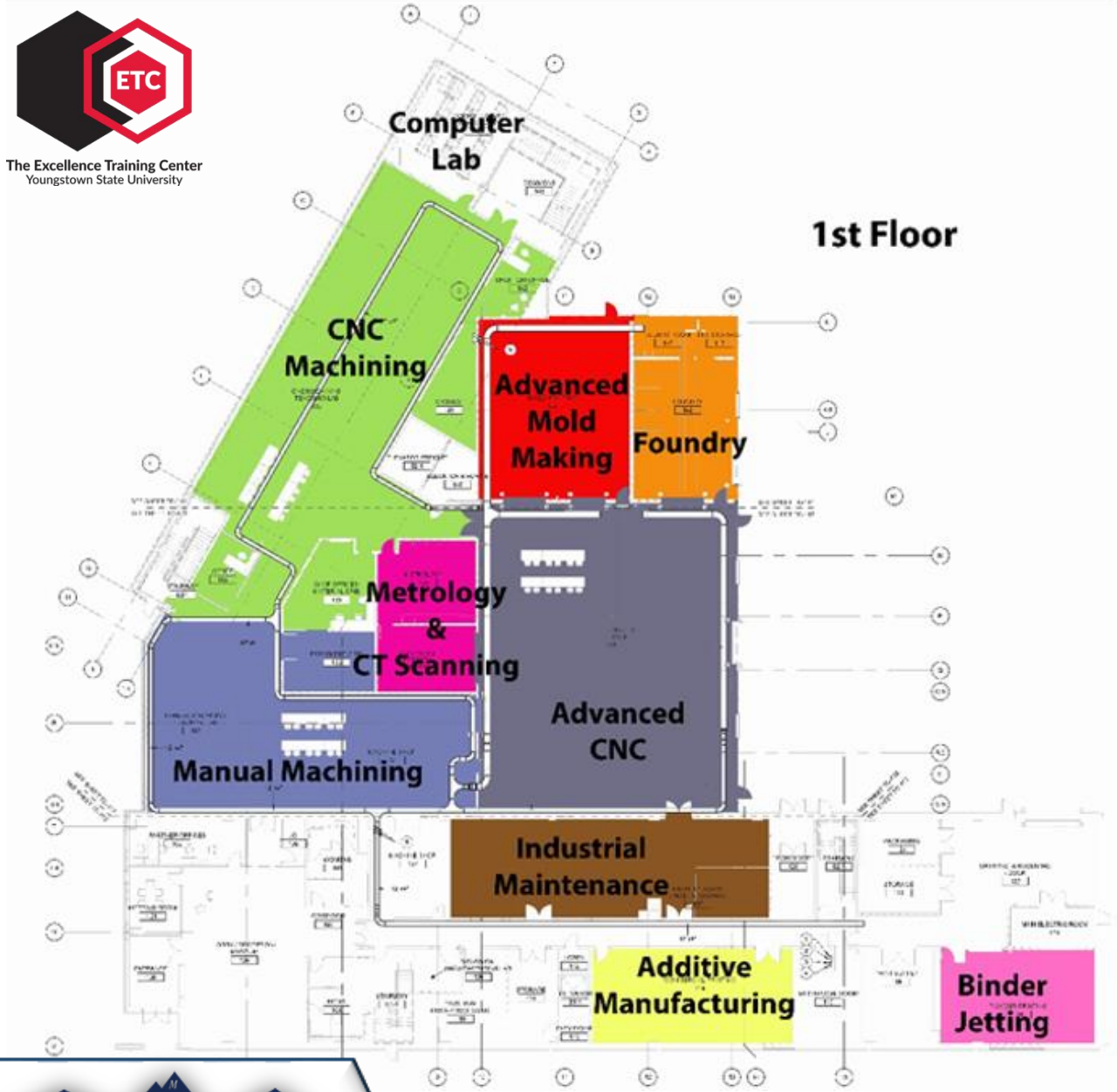
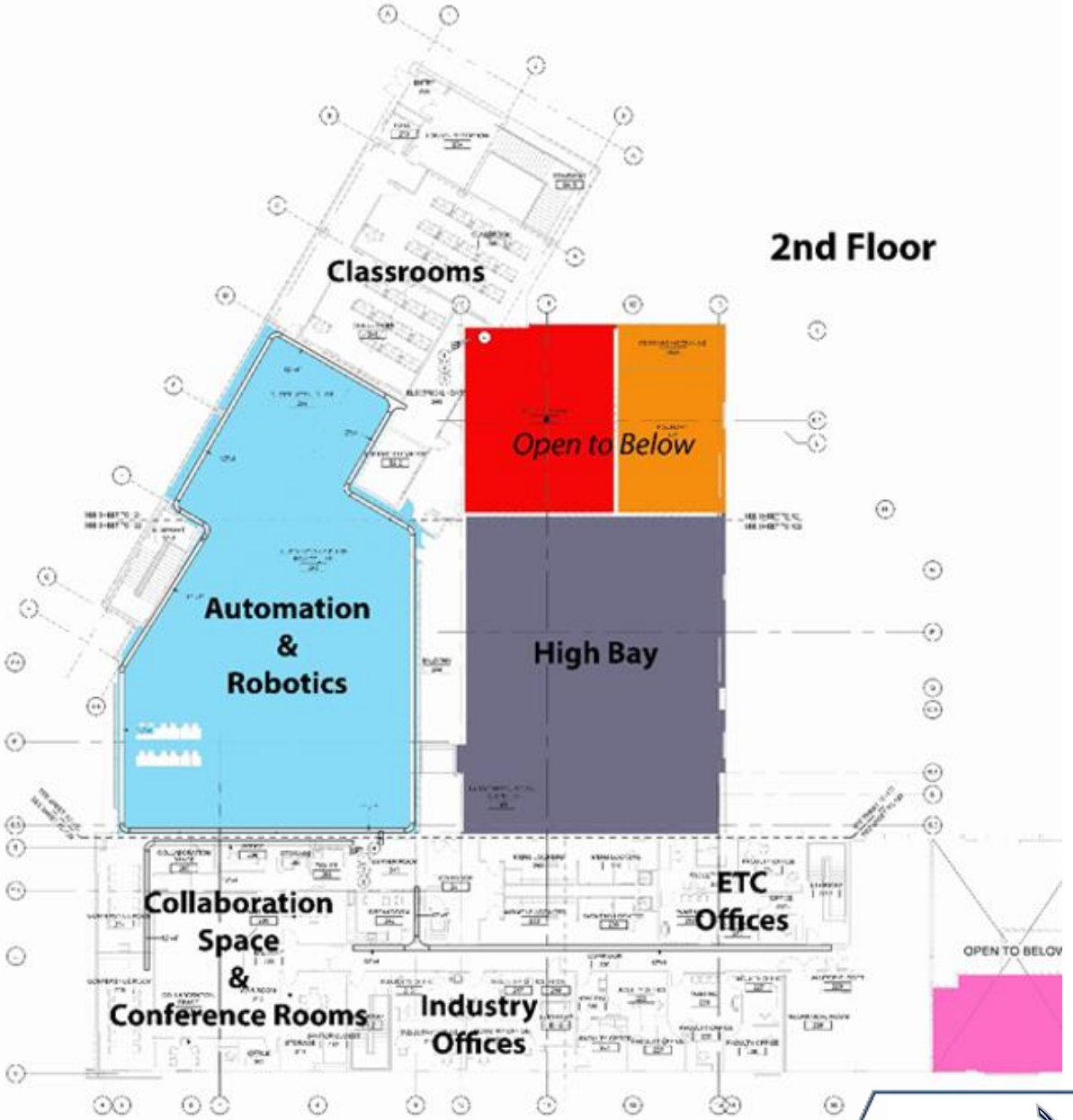
The Excellence Training Center
Youngstown State University





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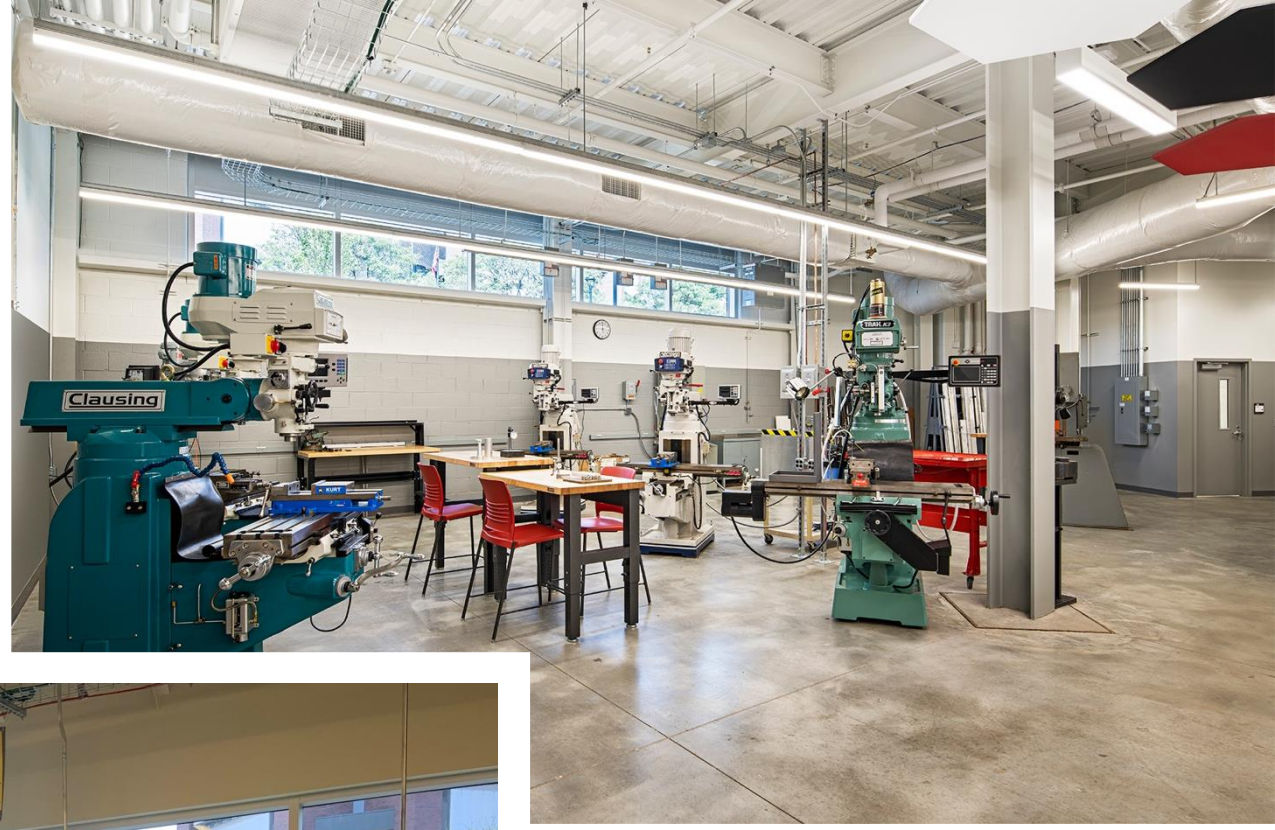
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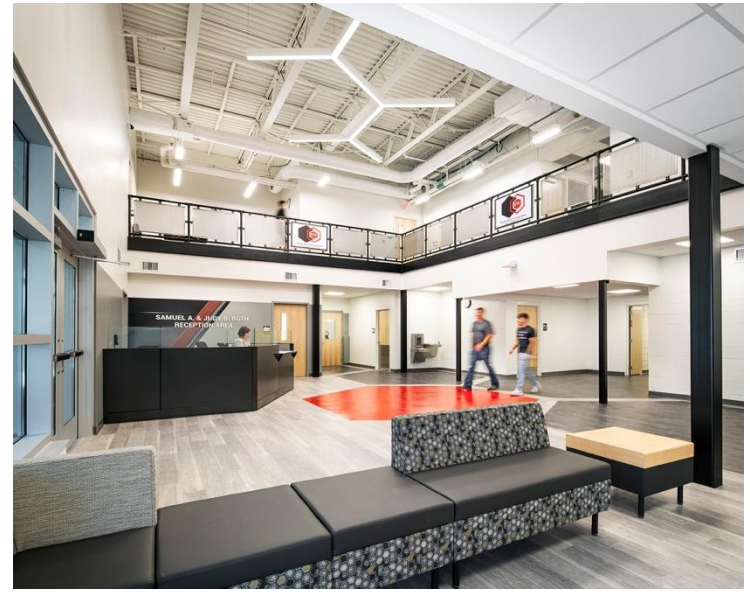

FANUC

The Excellence Training Center
Youngstown State University

Non-credit Courses

Safety

- OSHA 10-Hour General Industry
- OSHA 10-Hour Construction
- OSHA 30-Hour General Industry
- OSHA 30-Hour Construction
- *Other safety classes are available through the Industrial Maintenance Catalog

Robotics

- FANUC Handling Tool Operation and Programming
- FANUC 2D iRVision (coming soon)
- FANUC Robot-PLC Integration (coming VERY soon)
- Universal Robotics -Core training

Automation

- Rockwell Studio 5000 ControlLogix Fundamentals (CCP146)
- Rockwell Studio 5000 ControlLogix Maintenance and Troubleshooting (CCP153)
- Rockwell Studio 5000 Basic Ladder Logic (CCP151)
- Industrial Ethernet Fundamentals for Manufacturing

Additive (3D printing)

- Additive Manufacturing-FDM
- Additive Manufacturing-Metal
- Additive Manufacturing-Vat Photopolymerization

Machining

- Manual Machining (mill, lathe, etc.)
- CNC machining

Industrial Maintenance

- Industrial Maintenance (electrical, mechanical, hydraulics, pneumatics, piping, motor control, etc.)

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➔ Encourage our students to obtain IRC's and certificates

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Personal experience example: Moving to an R2 Institute

- ➔ YSU is in the progress of going for an R2 designation for 2031 (just like NMT) (FY 27, 28 and 29 data)
- ➔ $5 million dollar in research expenditure (average over 3 FYs) (NSF HERD Survey)
- ➔ 20 doctoral degrees (average over 3 years) YSU is on the right path (IPEDS)
- ➔ Looking at NMT, research expenditure is solid, Doctoral degrees are getting there

YSU challenges and approach

- ➔ We were under reporting research expenditures
- ➔ We are focusing on new PhD programs
- ➔ We are investing in specific focused research
- ➔ Support to faculty engaged in research

Benefitting student engagement

- ➔ Greater access to research positions
- ➔ Increase in PhD students
- ➔ Direct mentorship by tenure(track faculty
- ➔ Research solving real-world problems

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Personal experience example: Moving to a Community engaged Institute

➔ YSU received the Carnegie classification for Community engagement in 2026

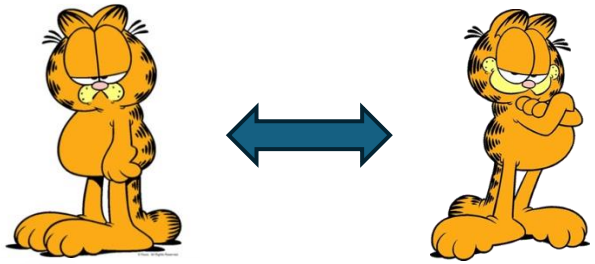
What is needed?

- ➔ Demonstrate that community engagement is deeply rooted in its core identity, strategic plan, campus culture
- ➔ Document community-engaged learning, service-learning, community-engaged research, and public scholarship enrich student learning and faculty work
- ➔ Demonstrate true collaboration with local, regional, national, or global communities for the mutually beneficial exchange of knowledge and resources
- ➔ **Would this be of interest to NMT?**

Improving student experience outside of the Classroom - Summary

What does it take?

1. ***Multi-unit collaboration***
   - ➔ Takes a village
2. ***Support and Recognition for the initiatives***
   - ➔ For faculty, staff and students involved
   - ➔ Some cases it requires budgetary support (internal or external acquired)
   - ➔ Upgrading academic facilities, equipment without breaking the bank!
3. ***Can-do attitude***



I am always open for ideas!

What is the impact (Short and long term)?

1. ***Improved Student Retention, Completion, Graduation Rate***
2. ***Impact on Overall Enrollment***
3. ***Increased engagement, belonging, being valued and NMT pride***
4. ***Realization it is not up to 'others' but starts with 'me' (Campus work environment)***
5. ***Brakes down the silo's, realization that we all need to work together to make a difference***
6. ***Faculty and Staff retention***

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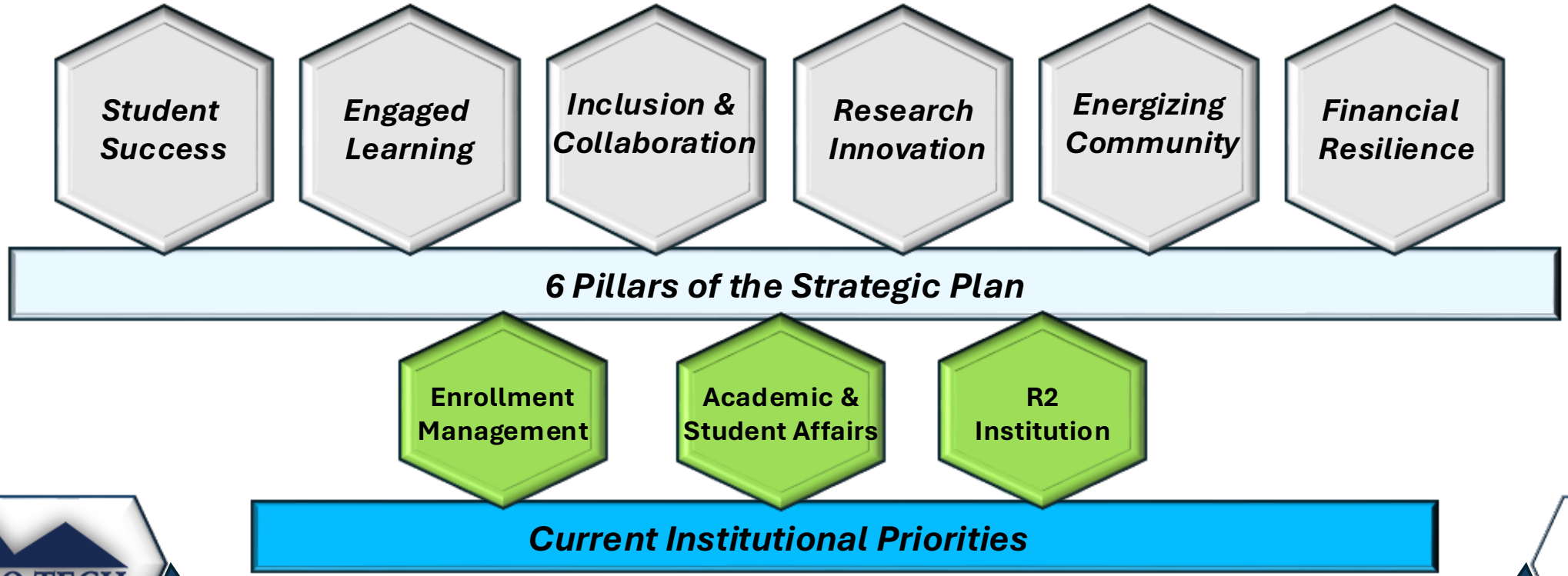
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY



"It's always 'Sit,' 'Stay,' 'Heel'—never 'Think,' 'Innovate,' 'Be yourself'."

Leadership style:

- Transparent & Shared governance
- Open for ideas – supporting great ideas
- Open-door policy (120 faculty; 30 staff, 3000+ students)
- Student centered
- Working together to solve problems
- 'I am here to serve you' attitude; how can I help?
- Allergic to toxic environments
- Positive and engaged attitude – Leading by example

Leadership track-record over 3 different institutions:

- 3 years of being a chair and 16 years of being a Dean
- Unionized environment (Faculty and Staff)
- Zero votes of no confidence
- Zero union grievances
- Obtained several leadership awards from faculty and staff

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