



**INDUSTRY & DEFENSE
PROGRAMS**

NATIONAL INSTITUTE FOR AVIATION RESEARCH

FAA / EASA

Joint Additive Manufacturing Working Group

September 17 – 19, 2024

Wichita, KS

**WICHITA, KS
HUNTSVILLE, AL**
LOCATION

\$400+ MILLION
YEARLY R&D

2.0 MILLION
SQUARE FEET

SIX WICHITA AREA
LOCATIONS

1985
ESTABLISHED

1,900
PERSONNEL

The National Institute for Aviation Research (NIAR) at Wichita State University provides research, testing, certification and training for aviation and manufacturing technologies.

Established in 1985, NIAR has a \$400+ million annual budget; 1,900 personnel; and over 2 million square feet of laboratory and office space in six locations across the city of Wichita, the Air Capital of the World.

Wichita, The Air Capital of the World



CESSNA CITATION X



AIR FORCE ONE



KING AIR



737-800

Welcome to WSU-NIAR!



John Tomblin, PhD
Senior Vice President for Industry and
Defense Programs,
WSU-NIAR Executive Director



Rachael Andrulonis
Director of Advanced Materials Research



Lauren Tubesing
Business Development Leader,
Advanced Manufacturing Strategy



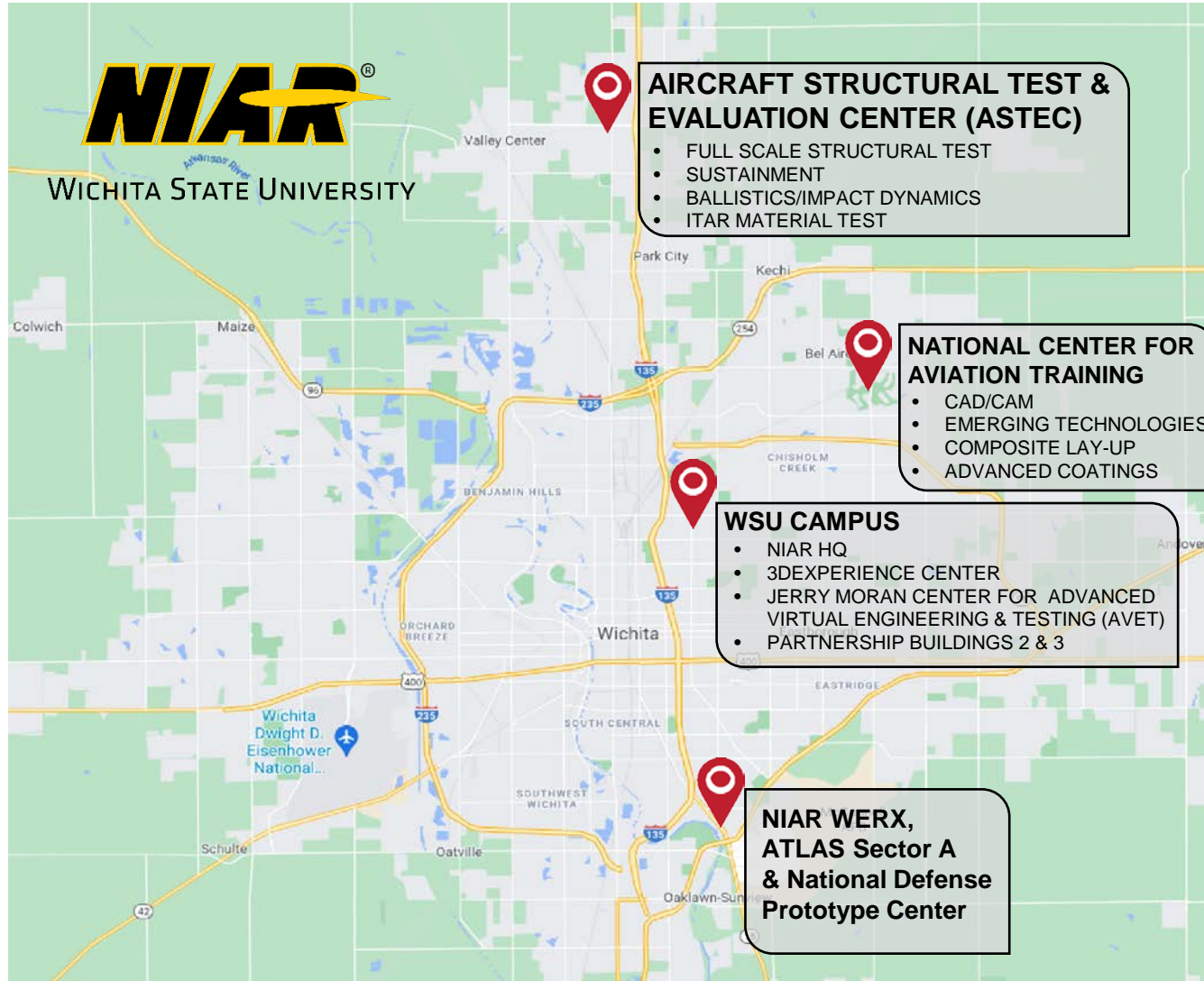
Mark Shaw
Chief Engineer,
Defense Industrial Base Strategy

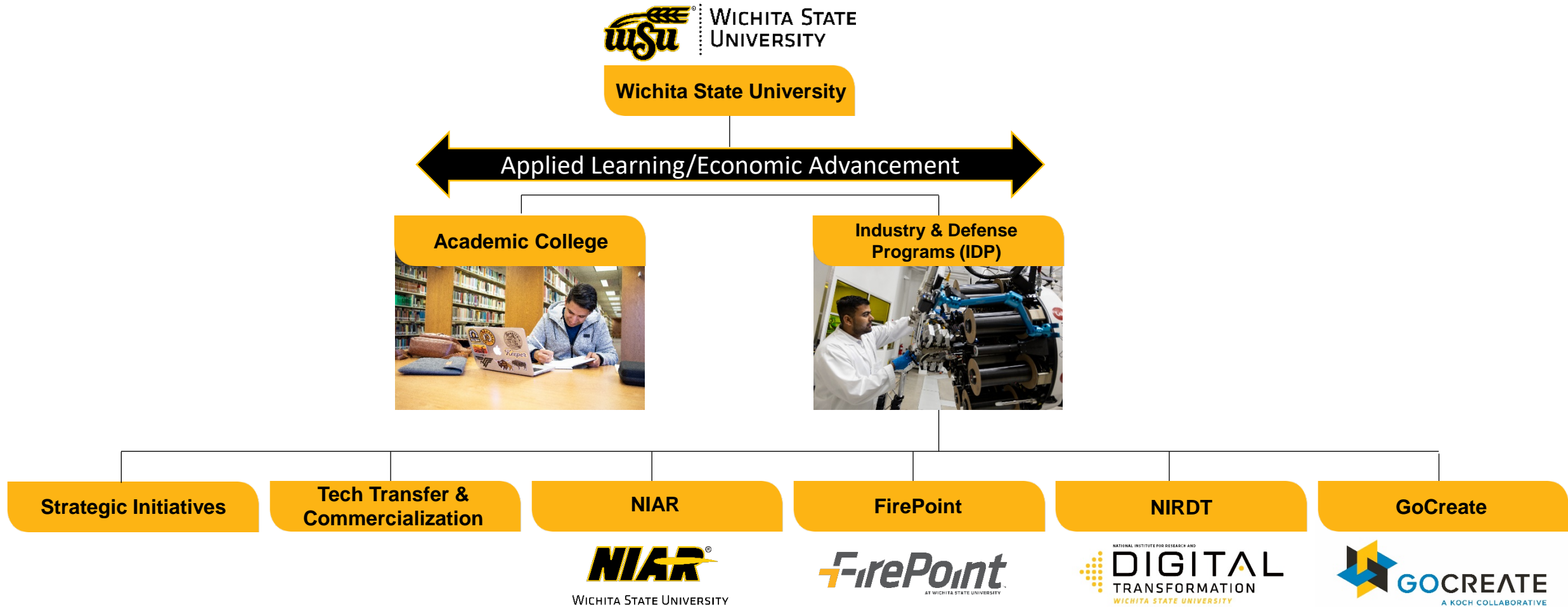


Brandon Saathoff
Senior Engineering Manager,
Advanced Materials Research

Our mission is to strengthen university research capabilities; provide applied learning opportunities for students; and support the aviation and manufacturing industries – while driving innovation and prosperity for the community, region and state.

LOCATIONS





**INDUSTRIAL
MODERNIZATION
OF MATERIALS &
MANUFACTURING**



WICHITA STATE UNIVERSITY

**SYSTEM
AUTOMATION
& DIGITAL
MANUFACTURING**

**DIGITAL
TRANSFORMATION
& SUSTAINMENT
MODERNIZATION**

**TEST &
EVALUATION**

**ENGINEERING,
CERTIFICATION,
MODIFICATION &
PROTOTYPING**

2022 **WICHITA STATE UNIVERSITY**
R&D EXPENDITURES RANKINGS

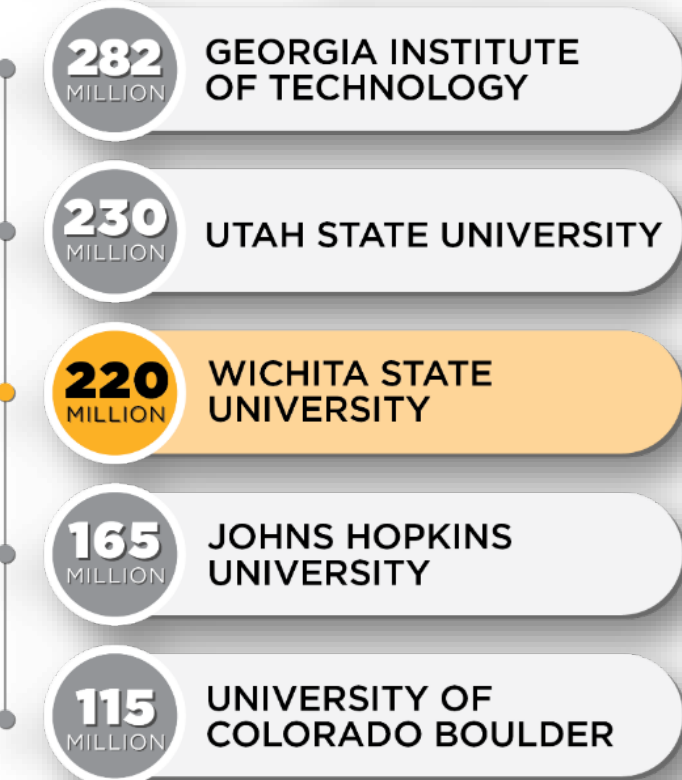


2022 **INDUSTRY-FINANCED AEROSPACE**
R&D EXPENDITURES



Source: National Science Foundation Higher Education Research and Development survey 2022

2022 **TOTAL AEROSPACE**
R&D EXPENDITURES



Source: National Science Foundation Higher Education Research and Development survey 2022



WICHITA STATE UNIVERSITY

RDT&E Budget Activity Codes

- | | |
|-----|--|
| 6.1 | Basic Research |
| 6.2 | Applied Research |
| 6.3 | Advanced Technology Development |
| 6.4 | Advanced Component Dev. and Prototypes |
| 6.5 | System Development and Demonstration |
| 6.6 | Management Support |
| 6.7 | Operational System Development |

1985



2018

- Testing & Evaluation roots
- Focus on applied research to support industry (6.2 & 6.3) coupled with applied learning (primarily undergraduate workforce)
- Some 6.1 basic research

How do we continue to grow and support industry and government programs?



WICHITA STATE UNIVERSITY

RDT&E Budget Activity Codes

6.1	Basic Research
6.2	Applied Research
6.3	Advanced Technology Development
6.4	Advanced Component Dev. and Prototypes
6.5	System Development and Demonstration
6.6	Management Support
6.7	Operational System Development

1985



2018



2018 &
BEYOND

- Testing & Evaluation roots
- Focus on applied research to support industry (6.2 & 6.3) coupled with applied learning (primarily undergraduate workforce)
- Some 6.1 basic research
- Be able to come along side an OEM or Gov't partner to support advanced component and systems development, management & engineering support, operational system development (6.4, 6.5, 6.6, 6.7)

NIAR STRATEGY TRANSFORMATION

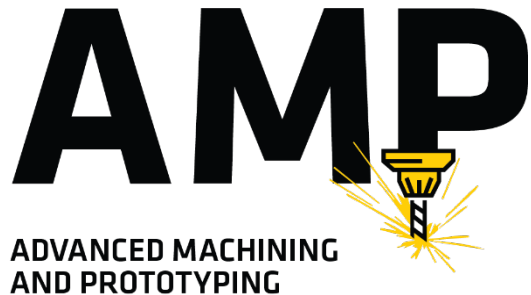


WERX

Engineering, Design & Modification
Maintenance, Repair & Overhaul

ARC

AUTOMATION RESEARCH CENTER



IME

INDUSTRIAL MODERNIZATION
OF MATERIALS & MANUFACTURING

**HAMR (Hub for Advanced
Manufacturing and Research)**



Not Your Traditional Research Model

WSU IDP differs from most universities:

- Focus on **applied** research & technology development, instead of basic research
- Relatively high share of funding from industries (~**45%**)
- High engagement of undergraduate student employees (~**800** student employees)

WSU's Applied Learning Model

STUDENTS
PARTICIPATED IN

8,029

DIFFERENT ON-CAMPUS & OFF-CAMPUS POSITIONS,
CO-OP/INTERNSHIPS AND
APPLIED LEARNING EXPERIENCES*



*These experiences include both paid and unpaid positions.



Students Earned Approximately

\$28.5 Million



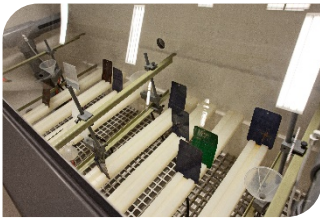
Students Worked With Approximately

601 EMPLOYERS





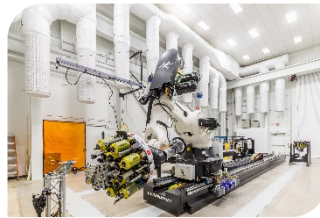
**Additive
Manufacturing**



Advanced Coatings



**Advanced Machining
& Prototyping**



ATLAS



**Ballistics & Impact
Dynamics**



CAD/CAM



Advanced Materials



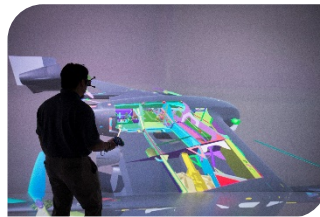
Crash Dynamics



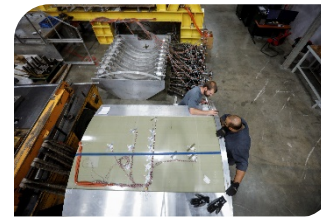
Digital Twin



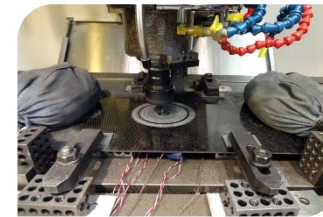
Environmental Test



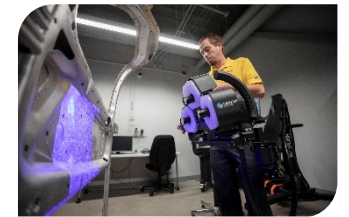
eXtended Reality



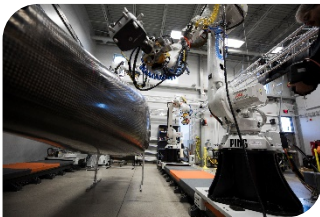
**Full-Scale Structural
Test**



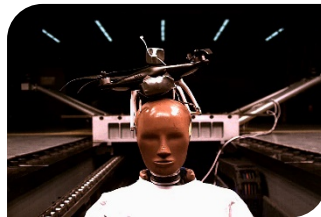
Mechanical Test



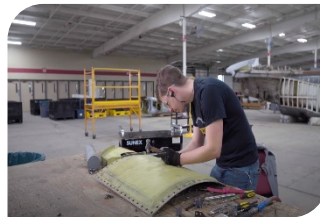
Reverse Engineering



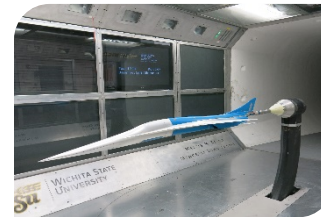
Robotics



**Unmanned Aircraft
Testing**



Sustainment



Wind Tunnel



WERX

How To Find Us

➤ Search "Rhatigan Student Center" in Google Maps

➤ Beggs Ballroom is on the 3rd Floor

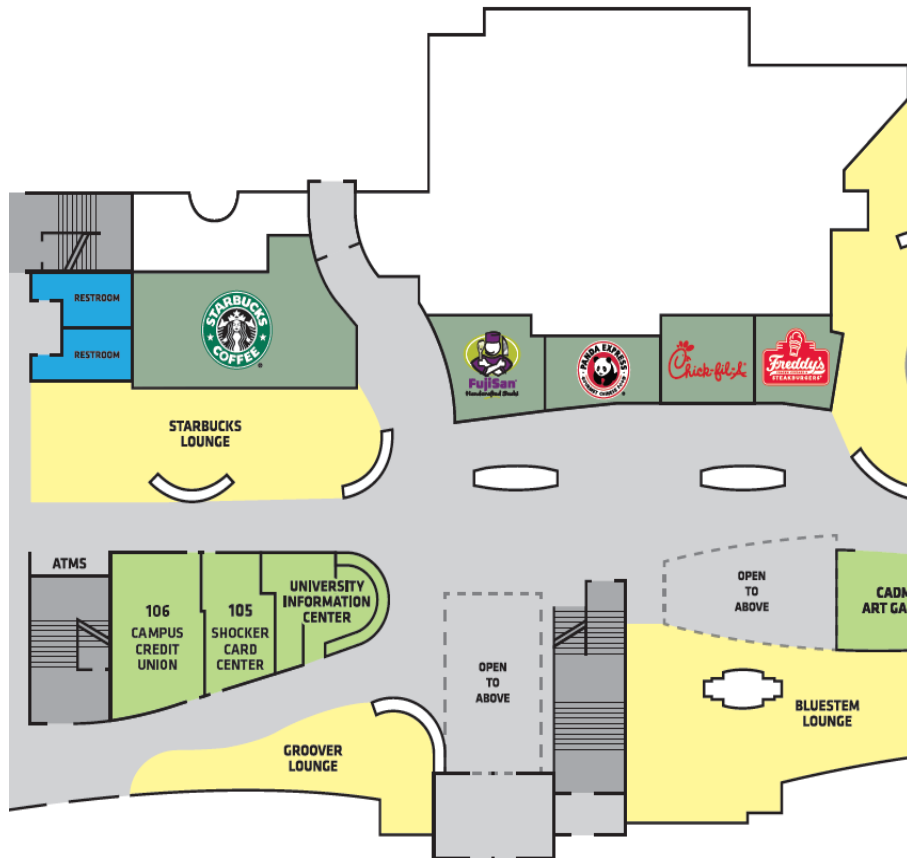
Rhatigan Student Center



Free parking available in Lot 24 or paid parking available in the garage



1st Floor of RSC:



Braeburn Square:

4521 E 21st St. Wichita, KS 67208
0.9 Miles From RSC



- Fuzzy's Taco Shop
- Jersey Mikes Subs
- Sesame Mediterranean Kitchen
- Social Tap Drinkery
- Starbucks
- Sungrano Pizza
- Two Hands Corn Dogs
- Wheatly's Burgers

Day 1 Agenda (September 17)

0730	Networking & Registration	
0800	Welcome & Keynote	
0900	EASA, FAA, Updates	
1000	Summary: AM Parts in Service	The Rhatigan Student Center Beggs Ballroom
1015	Office of the Secretary of Defense (OSD) POV on AM	
1035	BREAK	
1055	Design Approval Holder Updates	
1135	LUNCH	
1305	Working Group Breakout Session Instructions	
1310	WG Breakout Sessions: Day 1	The Rhatigan Student Center Breakout Rooms
1545	Design Approval Holder Updates	The Rhatigan Student Center Beggs Ballroom
1645	Day 1 Closing Comments	

Day 2 Agenda (September 18)

0730	Networking & Registration	
0800	Opening Comments Day 2	
0810	Regulations for AM	The Rhatigan Student Center Beggs Ballroom
0830	5 Production Approval Holder's	
1010	BREAK	
1030	NIAR Update	
1100	LUNCH	
1230	Discussion: PAQCS	
1300	3 Quick Hits	The Rhatigan Student Center Beggs Ballroom
1330	WG Breakout Session Instructions	
1340	Working Group Breakout Sessions: Day 2	The Rhatigan Student Center Breakout Rooms
1650	Closing Comments Day 2	

Day 3 Agenda (September 19)

0730	Networking & Registration	
0800	Opening Comments Day 3	The Rhatigan Student Center Beggs Ballroom
0810	WG Breakout Sessions	The Rhatigan Student Center WG's 1 & 4: Beggs Ballroom WG 2: McKay WG 3: Gridley
1000	Break	
1010	WG Report Outs	The Rhatigan Student Center Beggs Ballroom
1150	LUNCH	
1330	TOURS (Optional)	

* Coffee & water refreshed throughout the day

* Light snacks will be delivered around 1400 each day

WiFi: WSU Guest

Day 3 Tours

	1330	1430	1530
Cockpit Cabin Crew	NIAR HQ		NCAT
	NCAT	NIAR HQ	
		NCAT	NIAR HQ

Check your badge for your assigned tour group.

National Center for Aviation Training

NCAT
4004 N Webb Rd.
Wichita, KS 67226



NIAR Headquarters

NIAR HQ
1845 Fairmount St
Wichita, KS 67260



President/CEO of the
Kansas Aviation Museum
in Wichita, KS

Keynote
Speaker:
Ben Saucedo

