Engineering Systems Technology Advisory Committee and AMT Sub-Committee Meeting
Monday, November 16, 2020
1:00 – 2:30 p.m. via ZOOM

AGENDA

Welcome and Introductions – Meeting called to order by Reggie Davis, Advisory Committee Chair

a. Committee Membership in Attendance
Chairman Reggie Davis, Dean Terri Messer, Dr. Larry Bailey, Dr. George Pimentel, Jason Bates, Jim Droke, Mickey Powers, John Latimer, Rob Aplegren, Duncan Bagget, William Taylor, Dave Williamson, Kimberly Johnson, Aaron Hamilton, Roger James, Ben Lawrence, Cathi Roberts, Roselind Blackwell, Anthony Fitz - Engineering Systems Technology Program student, works at Toyota Bodine

b. State of the College – Dr. George Pimentel, President
Impact of COVID-19 and the college's operation and guidelines
Expectation of dip in enrollment and completion numbers due to COVID-19
Focus on equity and access to meet the needs of the community
Will help to support the EST/AMT program and stay up to date
Despite the impact of COVID-19, overall, the program is moving in the right direction

Old Committee Business – McWherter Center HVAC renovations
August/September completion of Phase One
Mid May 2021 start for Phase Two

New Business

a. Program Updates – Engineering Systems – Terri Messer
    a. Enrollment – see trend chart
    b. Graduation – see trend chart
    c. Exit Exam Results – see trend chart
    d. Placement – see informatic for details
b. Program Schedule Review – Hybrid/Zoom and Evening Cohorts – Roger James, Ben Lawrence, Aaron Hamilton
Evening cohort of students and some others did not do well by end of Spring 2020 due to the change in class format to online, hybrid labs and ZOOM lectures
        i. Pilot for Non-College Ready Madison County high school graduates – Cathi Roberts
Piloting schedule plan for JMCSS high school graduates who are not college ready
Use of Electrical Circuits and PLC 1 as co-requisites
c. ATMAE Accreditation Update – Terri
    a. Employer (9/25 email from Messer) and Alumni Satisfaction surveys
Jim Droke appreciated everyone for the update, but had concerns regarding the effect of COVID and filling roles that are projected. Concerned about vacancies of positions and not enough students and recruitment to fill manufacturing jobs. How to close gaps…

d. Program Funding efforts
    a. Update on new lab equipment/supplies received based on advisory committee's previous input – Roger, Ben, Aaron – GIVE Grant, Delta Regional Authority Grant
    Collaboration for lab equipment through the GIVE Grant funded two new robotics trainers which now gives us seven trainers. The goal is to have eight. Recorded demonstration was given.
    Also funded were two Instrumentation Trainers based on previous needs feedback. Students are more engaged with Instrumentation. Adjusting curriculum for Instrumentation. Use for Motion Control and PLC.
    Other equipment purchases were 3-D printer, portable LOTO trainer, Injection Molder (donation from TBDN) and portable Electrical Circuit trainers
    b. TCAT Jackson Articulation Agreement Draft
    Articulation plan with Jackson TCAT Industrial Maintenance graduates
    See table for suggested curriculum equivalencies for TCAT and JSCC students to meet manufacturing employers' needs upon completion of program and then entering their facilities

    Question from Jason Bates regarding safety and TCAT curriculum.

    Ben spoke on student competency, delivery method and expectation in the workforce. Confidence of professionalism and high standards are expected of TCAT students

    ****Dean Messer addressed the groups concern about the number of credit hours TCAT students could earn using the articulation by explaining that we do have PLA tests if TCAT students were interested in earning more credit hours.**

    John Latimer - Experience with TCAT students at PictSweet is top-notch. Should go through testing to bump up those students. Overall great experience

    Reggie Davis - From past experience, TCAT has made advancements and learning improvements for their students
    Recommended to move forward with TCAT Articulation
    c. Workforce Development grant efforts/awards – Kimberly Johnson, WFD Director
    Workforce Development presentation on training offered such as PLC, Project Management, Problem Solving, FANUC training, GD&T Fundamentals. Suggestions for more training options such as forklift simulator, supply chain automation and 3D printing. Survey to determine future needs
    d. Perkins V Needs Assessment Request – Technology of the future? Required we have your documented 'wish list' to continue funding opportunity.
e. Program Recruitment Update – Cathi
    a. Hurdles ahead for Fall 2021 incoming class
    Recruitment for AMT students and changes in curriculum due to COVID
    College readiness criteria was removed
    Application deadline was changed along with in person interviews; no orientation or TEAM meetings
    Working with JMCSS on recruiting students for the AMT/EST program. Hopefully open up to other school systems.

Jason Bates – Marketing to TEAM member children or grandchildren, suggesting to apply to the AMT/EST programs. Potential for more students. Snippets of companies to recruit and market to students

f. JSCC staff/instructor specialized training completed in 2019/20 or scheduled for 2020/21:
   a. FANUC Level 2 Instructor certification achieved – Aaron Hamilton
   b. Masters Degree in Engineering Technology with Graduate Certificate in Lean – Ben Lawrence
   c. Additive Manufacturing Seminar – Roger James
   d. Would like opportunity for additional summer 2021 faculty externships

g. Curriculum Review – Roger James, Aaron Hamilton and Ben Lawrence

Review of Program Goals:
Long Range Goals - see information for listed long range goals – approved by committee
Short Term Program Goals:
Short Range - see information for listed short range goals – approved by committee
Goals are accurate to the committee members needs

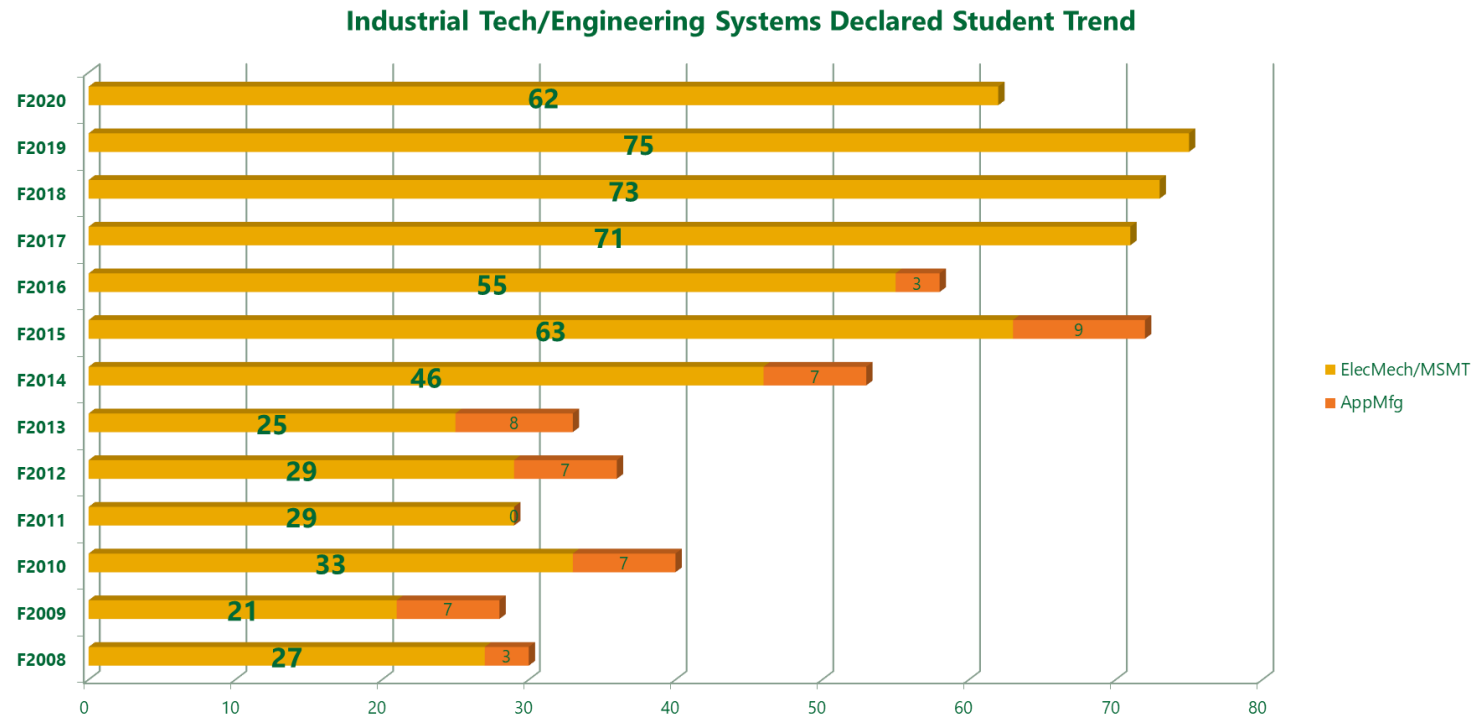
   a. Specific Course validation analysis and feedback on Fluid Power, Robotics, Electronics/Electrical Circuits

Fluid Power (ENST 2361) - Jim Doke - concerned with students not learning course objectives if taught virtually and not hands-on
Dr. Bailey - with COVID-19 guidelines, will do everything possible to make sure students are successful
Robotics (EETC 2350) - FAST and CERT Certification through FANUC
Jim Droke suggestion on how to tear down mechanical units and controller
Electronics and Electrical Circuits (EETC 1311) - Remaining committee members okay with reconfiguration of EETC 1311
Final words from Reggie Davis - to stay involved with students and communicating the importance of completing their program
Terri to follow-up with Employer Satisfaction surveys

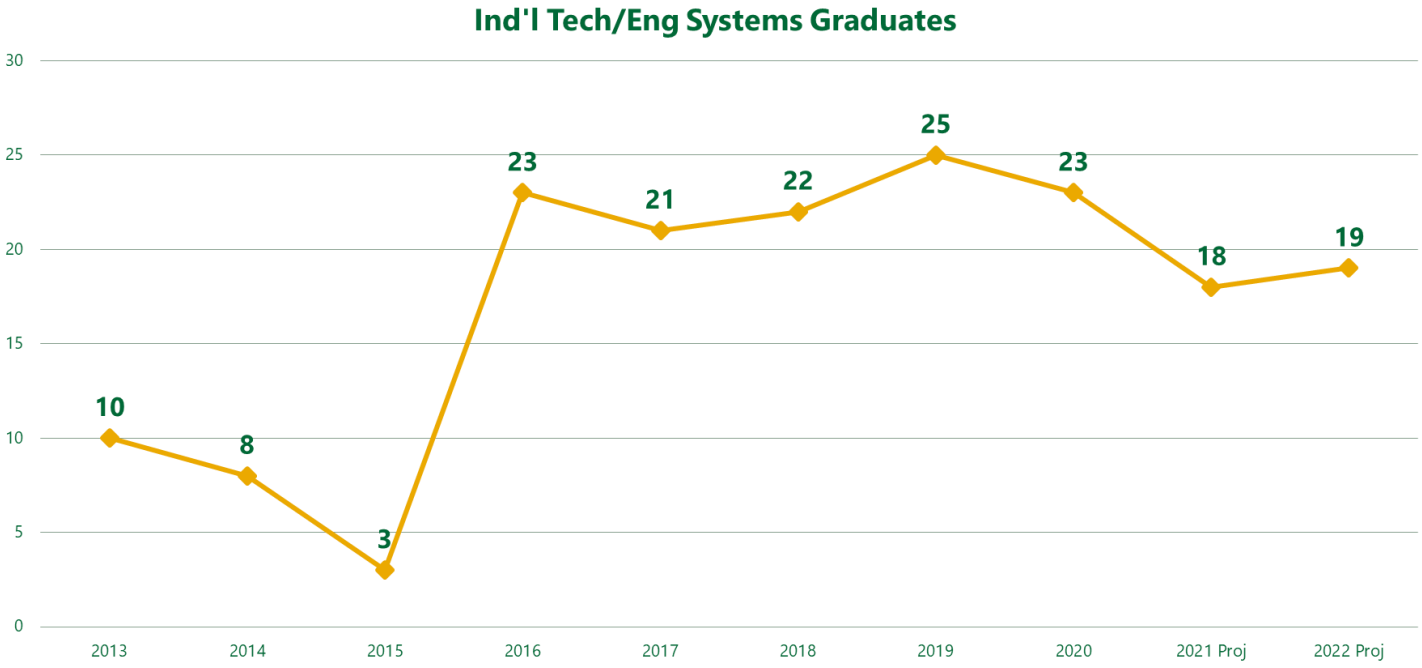
Meeting was adjourned 3:05 p.m.

Minutes recorded by Roselind Blackwell

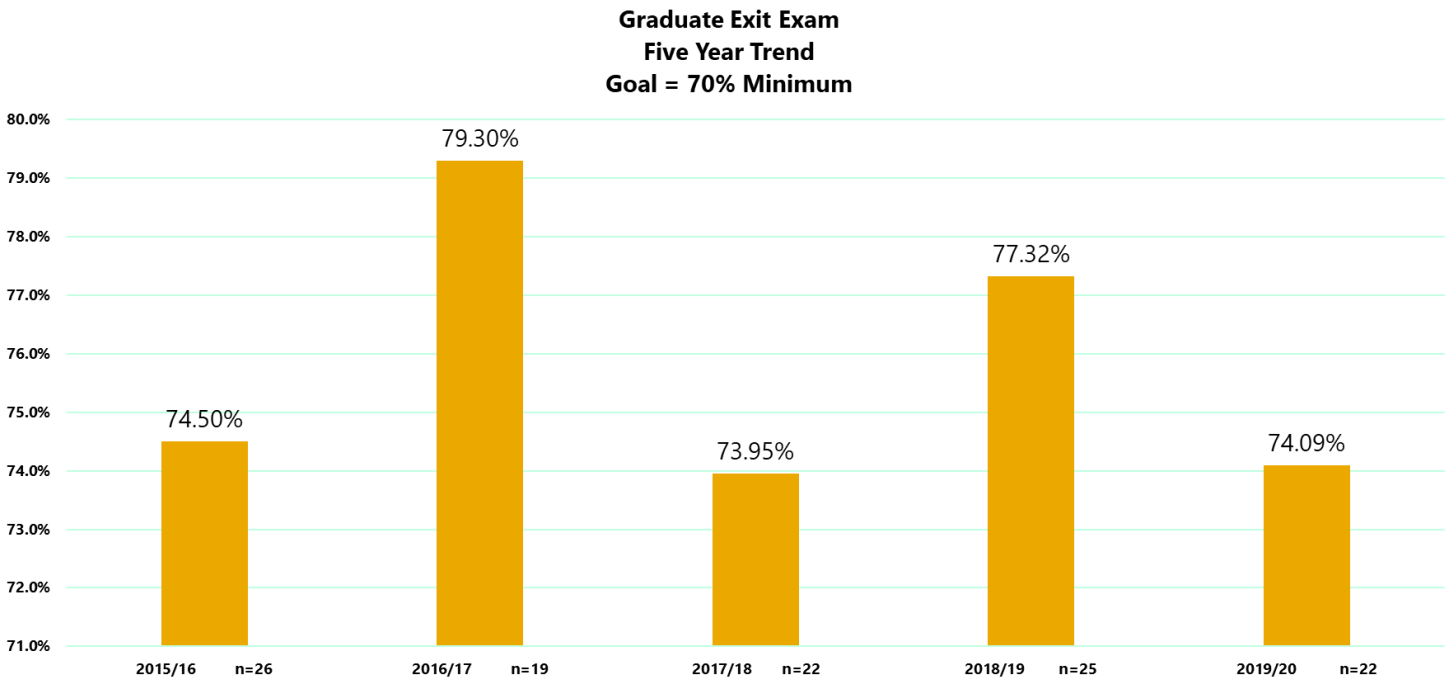
a.a.

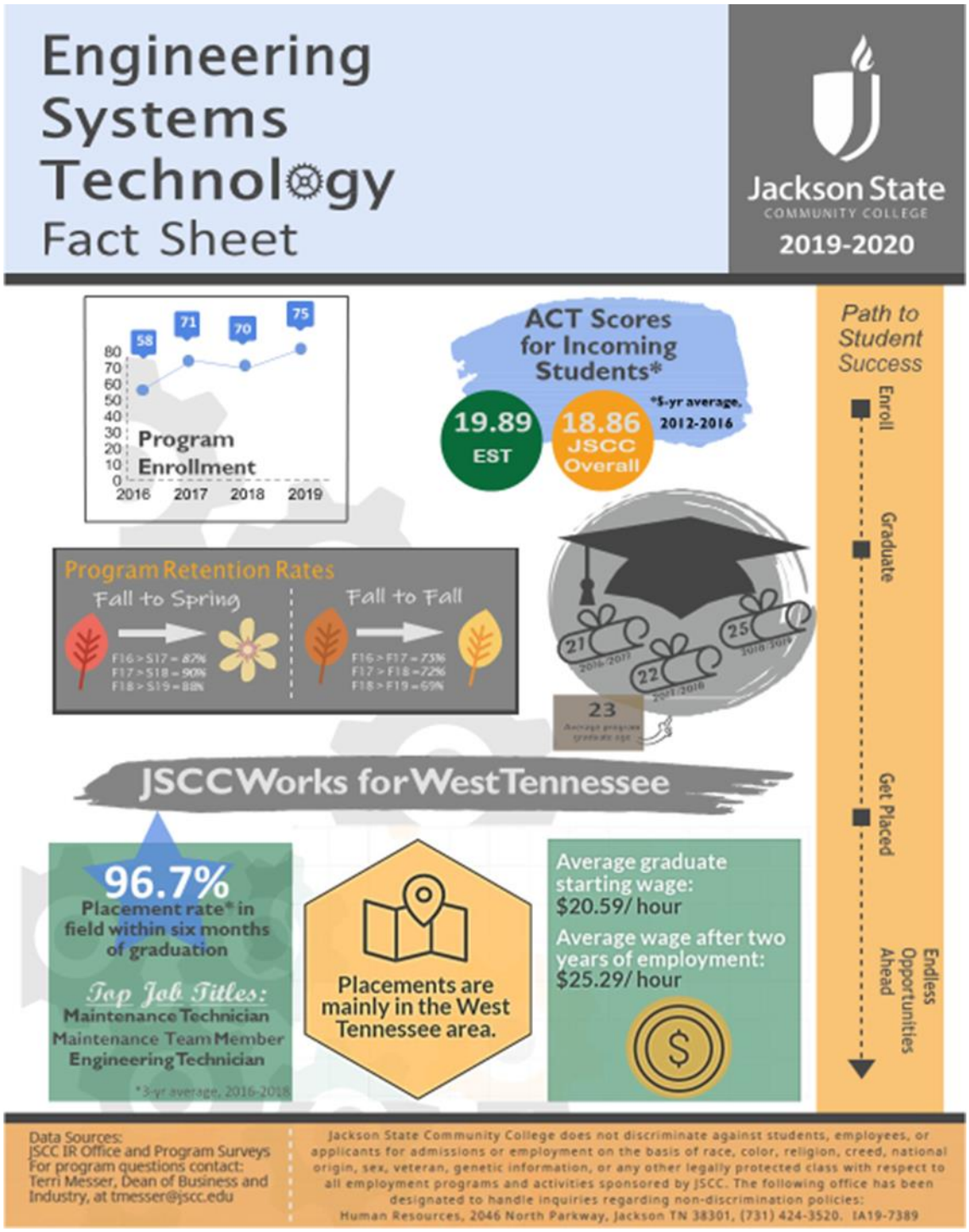

Industrial Tech/Engineering Systems Declared Student Trend
F2020
F2019
F2018
F2017
F2016
F2015
F2014
F2013
F2012
F2011
F2010
F2009
F2008
62
75
73
71
55
3
63
9
46
7
25
8
29
7
29
0
33
7
21
7
27
3
0
10
20
30
40
50
60
70
80
ElecMech/MSMT
AppMfg

a.b.


Ind'l Tech/Eng Systems Graduates
30
25
20
15
10
5
0
10
8
3
23
21
22
25
23
18
19
2013
2014
2015
2016
2017
2018
2019
2020
2021 Proj
2022 Proj

a.c.


Graduate Exit Exam
Five Year Trend
Goal = 70% Minimum
80.0%
79.0%
78.0%
77.0%
76.0%
75.0%
74.0%
73.0%
72.0%
71.0%
74.50%
79.30%
73.95%
77.32%
74.09%
2015/16 n=26
2016/17 n=19
2017/18 n=22
2018/19 n=25
2019/20 n=22



g.

- **Long Range**
  1. Develop responsible, informed and productive members of the workforce.
  2. Continually evaluate and revise course content to meet current and perceivable future needs.
  3. Establish and continue recruitment and promotional activities.
  4. Maintain and improve collaborative relationships with industry partners and community.
  5. Prepare students for gainful employment by developing their communication, problem solving, and technical skills.

6. Provide meaningful professional development opportunities for faculty.
7. Retain adequate staffing for current program support and future program growth.
8. Remain up-to-date with the most current technology used in today's industrial environment.

- **Short Range**
  1. Focus on and develop outcome based learning activities.
  2. Continue to utilize effective lab space management.
  3. Reorganize available space to more efficiently facilitate learning.
  4. Increase knowledge of the Engineering Systems Technology program in local high schools and the community.
  5. Update competencies to reflect new software packages.
  6. Utilize hybrid, online, on-ground, and /or accelerated course options for lecture and lab activities.
  7. Standardize and focus competencies for the Engineering Systems Technology curriculum.
  8. Continue to utilize ATMAE standards and affiliation for program improvement.
  9. Assimilate grant resources into existing EST program.
  10. Maintain EST career exit exam scores above 70%.

Jackson State COMMUNITY COLLEGE

Engineering Systems Technology/AMT Engineering/Maintenance Consortium Meeting

Monday, November 16, 2020
1:00 p.m. via ZOOM

Agenda

- **Welcome** – Reggie Davis, Committee Chairman, TBDN Manager
  - State of the College - Dr. George Pimentel
- **Old Committee Business** – None noted on previous meeting minutes. Published on program webpage; Advisory Committee: https://www.jscc.edu/academics/divisions/business-industry/engineering-systems/advisory-committees.html
- **New Business** –
  - Program Updates – Enrollment, Graduation, Exit Exam results, Placement
  - Schedules – Hybrid/ZOOM, Pilot for Non-College Ready, Evening
  - ATMAE Accreditation Update
    - Employer Satisfaction and Alumni Surveys
  - Program funding efforts and results
  - Recruitment Update
  - JSCC faculty/staff training
  - Program Goals, Objectives and Curriculum Review

Message from Dr. George Pimentel, 6th JSCC President

Mission of the College

"JSCC provides accessible learning opportunities that enhance the lives of individuals, strengthen the workforce, and empower our diverse communities by offering traditional and contemporary associated degrees, certificates, continuing education and enrichment, and college-readiness programs."

2015-20 Strategic Plan

Access
Student Success/Completion
Quality
Efficiency/ Resourcefulness
Workforce Development

Jackson State Community College

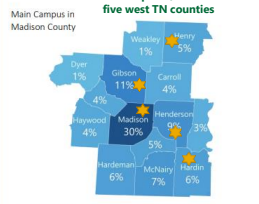
2020 College Profile

Jackson State Students by County and High School

Where did students live?	In fall 2019
Madison County	1,469 students
Gibson County	558 students
Henderson County	426 students

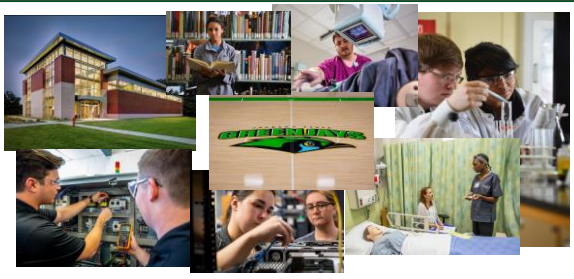
Where did students graduate from high school?	Recent high school grads who enrolled in fall 2019
Liberty Technology HS	73 students
South Side HS	55 students
South Gibson HS	52 students

With campuses/centers in five west TN counties



Among all Jackson State students enrolled in Fall 2019, 30% were from Madison County.

JSCC Offers over 50 Degree Programs



Over 50 Programs of Study

AAS Degrees (Career Ready Programs)

Business
Computer Information Technology
Fire Science
Engineering Systems Technology
Criminal Justice
Nursing
Health Sciences:
Health Sciences (Tracks in Healthcare Technician, EMT, or Medical Coding)
Medical Laboratory Technician
Occupational Therapy Assistant
Paramedic
Physical Therapist Assistant
Radiologic Technology
Respiratory Care

AST Degree – Associate of Science in Teaching

AA and AS University Parallel Degrees (Transfer)

Business and Computer
Accounting, Business Administration, Computer Science and Information Systems
Communication and Humanities
Art, Mass Communication, English, Foreign Languages, Music and General Studies
Mathematics/Natural Sciences
Agriculture, Biology, Chemistry, Engineering, Mathematics, Physics, Pre-Health Professions
Social and Behavioral Sciences
(Programs of Excellence – Honors, PTK, Service Learning, and International Studies)
Criminal Justice, Education & Physical Education, History, Political Science, Psychology, Social Work Sociology and Philosophy

Graduation and Enrollment Trend

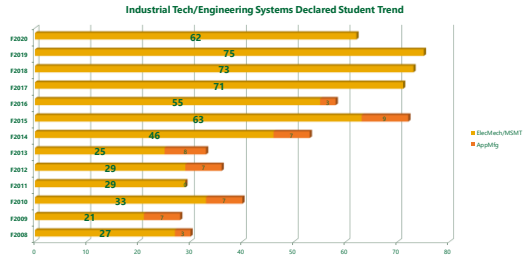
Graduation Year	Degrees	Certificates
2015-16	457	197
2016-17	487	219
2017-18	542	205
2018-19	500	182
2019-20	622	118
Total	**2608**	**921**

HEADCOUNT
(14th day of fall semester)

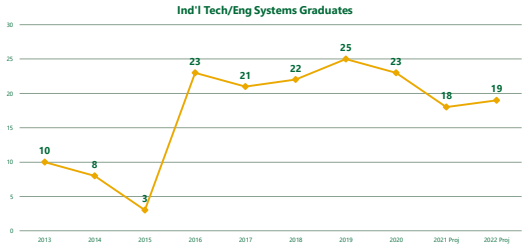
2017	2018	2019	2020	% Change 2019-2020	% Change 2017-2020
4,745	4,852	4,893	4,212	-13.9%	-11.2%

McWherter HVAC Renovations

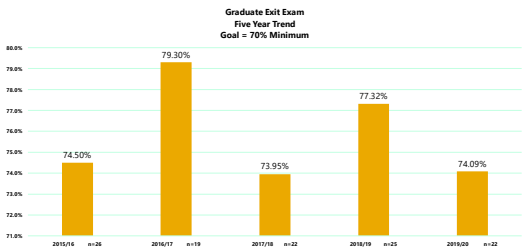
Engineering Systems Enrollment Trend



Engineering Systems Graduation Trend

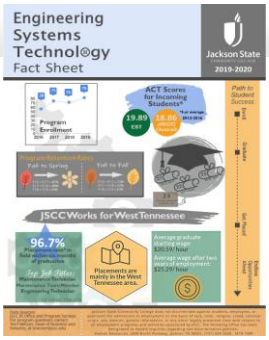


Engineering Systems Exit Exam Trend



Engineering Systems AMT Graduates Class of 2021

- 23 AMT students started Fall 2019 - 14 AMT students returned Fall 2020
- Lost Student Rationale: 2 moved, 3 personal issues, 2 academic failure, 2 Covid
- 12 AMT students scheduled to graduate in Spring 2021, 1 Summer 2021, 1 Fall 2021.
- Overall Cohort 6 graduation rate = 61% within 2 ½ years (TN community college 3 year graduation rate = 25.4%)
- This is the lowest graduation rate the engineering system program has had since the AMT cohort was established. Average normally between 77 – 83%.
- Evening Cohort : Scheduled to graduate 4/5 cohort students – 80%



Program Schedule Review

- Hybrid Labs / ZOOM Lectures
- Pilot Schedule Plan for non-college ready Madison County high school graduates
- Electrical Circuits and PLC 1 as co-requisites

ATMAE Accreditation Update

ACCREDITED BY ATMAE
The Association of Technology, Management, and Applied Engineering

November 26, 2019

The ATMAE Board of Accreditation conducted hearings on Wednesday November 6, 2019 at which your request for programmatic accreditation was among those considered. We are pleased to notify you that the following programs/options are granted ATMAE accreditation with a **two-year progress report (2021):**

• Associate of Science - Engineering Systems Technology, Multi Skilled Maintenance Tech

Please note the progress report will need to address the partial compliances for standards 13 and 16. The programs will be eligible for ATMAE reaccreditation in 2025. We will send notices regarding future due dates. Meanwhile, it is the responsibility of each institution to inform ATMAE of material changes to accredited programs and of changes to the contact information for those handling ATMAE accreditation issues.

New McWherter Center Lab Equipment – All Grant Funded

(2) New Trainers; 7 total robotic trainers – goal is to have 8 for the program and **Jackson F.A.S.T Center**!

(2) Instrumentation Trainers (based on your previous "needs" feedback)

New Lab Equipment Continued

3D Printer Fleet of 5

New to 'us', Injection Molder Trainer

Portable LOTO Trainers

Portable Electrical Circuit Trainers

Articulation Plan with Jackson TCAT Industrial Maintenance Graduates

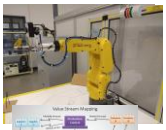
- In an effort to provide seamless educational opportunities for the region as well as improve the overall quality of employees entering your facilities, JSCC and TCAT Jackson researched and suggest the following:

TCAT-J Courses	JSCC Equivalent Course	JSCC Credit Allowed
IMI 1010, Orientation and Safety Work Readiness	**ENST 1350**, Industrial Safety (with validation of OSHA 10-Hour Safety certification award)	3
IMI 1030, Introduction to Electricity and IMI 1040, Ohms Law and Power Formula and IMI 1050, Kirchoff's Laws	**EETC 1311**, Electrical Circuits I	3
IMI 4010, Programmable Logic Controls and IMI 4020, Programmable Logic Control II and IMI 4030, PLC System Interfacing and Imi 4040, PLC System Troubleshooting	**EETC 2311**, Programmable Logic Controls I	3
IMI 2010, Industrial Control Components and IMI 2020, Motor Control Methods and IMI 2030, Three Phase Power Systems and IMI 2040, Three Phase Power Control	**EETC 2333**, Industrial Electronic Controls	3
	Total JSCC Credit Hours Articulated	12

Workforce Development Updates

Jackson State Community College






ed2go

Your thoughts on these additional trainers/training? Survey forthcoming to determine future needs 2021-2022.

Jackson State Community College


Forklift Simulator Trainer

****WHAT OTHER TRAINING WOULD YOU SUGGEST WE INCORPORATE INTO THE PROGRAM?** (Must have documented for Perkins V Federal funding efforts)**



Supply Chain Automation Trainer

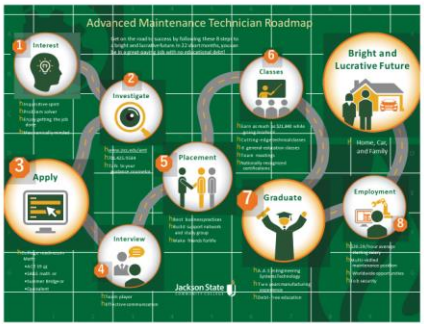
The growth of 3D printing at your firm?

Program Recruitment Update

Jackson State Community College

- Changes in recruiting and results for Fall 2020:
- *Removed the College Readiness criteria* = 9 new students are not math ready, 6 not ready in Reading/English, 4 not college ready in all 3 areas.
- *Removed application deadline* = April 15 we had 4 applications, ended up with 22 applications.
- *Personal contacts with interested students for registration* = Identified multiple students interested in Engineering Systems and corrected their major, identified multiple students interested in Engineering and referred to appropriate advisor.
- Other Covid changes for AMT:
- *No interviews* = Cathi placed students = 20 students placed, 15 remain with originally placed company
- *No AMT Orientation* = Students unaware of expectations, lack cohort "brotherhood", parents/supporters have been left out
- *No TEAM meetings* = Students don't know each other, ...
- Marketing Materials
- Strategy for this year

Recruitment Roadmap



Program Faculty/Staff Training

Jackson State Community College

- FANUC Level 2 Instructor certification achieved – Aaron Hamilton
- Masters Degree in Engineering Technology with Graduate Certificate in Lean – Ben Lawrence
- Additive Manufacturing Seminar – Roger James
- Would like opportunity for additional summer 2021 faculty externships



Review Program Goals

Jackson State Community College

- **Long Range**

1. Develop responsible, informed and productive members of the workforce.
2. Continually evaluate and revise course content to meet current and perceivable future needs.
3. Establish and continue recruitment and promotional activities.
4. Maintain and improve collaborative relationships with industry partners and community.
5. Prepare students for gainful employment by developing their communication, problem solving, and technical skills.
6. Provide meaningful professional development opportunities for faculty.
7. Retain adequate staffing for current program support and future program growth.
8. Remain up-to-date with the most current technology used in today's industrial environment.

Short Term Program Goals

- **Short Range**

1. Focus on and develop outcome based learning activities.
2. Continue to utilize effective lab space management.
3. Reorganize available space to more efficiently facilitate learning.
4. Increase knowledge of the Engineering Systems Technology program in local high schools and the community.
5. Update competencies to reflect new software packages.
6. Utilize hybrid, online, on-ground, and /or accelerated course options for lecture and lab activities.
7. Standardize and focus competencies for the Engineering Systems Technology curriculum.
8. Continue to utilize ATMAE standards and affiliation for program improvement.
9. Assimilate grant resources into existing EST program.
10. Maintain EST career exit exam scores above 70%.

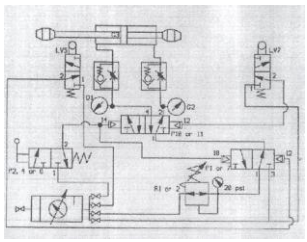
Course Validation Review (ENST 2361 Fluid Power)

Fluid Power Course Objectives

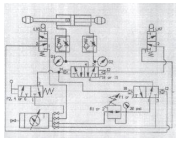
1. *Interpret hydraulic and pneumatic schematics using the correct hydraulic and pneumatic symbols.*
2. *Identify various hydraulic and pneumatic system components and the applications for each.*
3. *Build and test functional hydraulic and pneumatic circuits.*
4. *To understand the principles of a Fluid Power System.*
5. *To understand how each component operates.*

Course Validation Review (ENST 2361 Fluid Power)

Towards the end of the term, students are tasked to build the pneumatic circuit shown to the right. They are subjectively evaluated on how they, as a group, build, troubleshoot, and eventually operate the circuit.



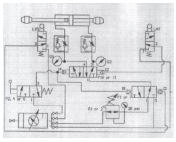
Course Validation Review (ENST 23610 Fluid Power)



Course Validation response for last two years as placed in the JSCC SLO (Student Learning Outcomes Report for 2019-2020 (by class section)

2019	Spring	01	89.65	Assignment is moderately difficult to accomplish on 1st iteration (Build), but after a few iterations, students accomplish task of building functional pneumatic lab circuit.	90.25
2019	Spring	02	91.00		
2020	Spring	04	N/A	Student were not able to complete pneumatic circuit building exercise due to campus closure for COVID 19 pandemic response.	N/A
2020	Spring	03H	N/A		

Course Validation Review (ENST 2361 Fluid Power)



Although scores for 2019 were satisfactory, a finer tuning of the evaluation effort and expectations is needed (R. James).

2019	Spring	01	89.65	Assignment is moderately difficult to accomplish on 1st iteration (Build), but after a few iterations, students accomplish task of building functional pneumatic lab circuit.	90.25
2019	Spring	02	91.00		
2020	Spring	04	N/A	Student were not able to complete pneumatic circuit building exercise due to campus closure for COVID 19 pandemic response.	N/A
2020	Spring	03H	N/A		

EETC 2350, Robotics

Robotics Course Objectives

- Identify the working axes of an industrial robot.
- Create a basic program for a pick and place operation using a teach pendant.
- Demonstrate an understanding of how robotic technology is integrated into an automated system.

Electronics I and Electrical Circuits

Jackson State Community College

Electronics I Course Objectives:

- Demonstrate an understanding of:
  - Basic circuit analysis
  - General active components (capacitors and inductors)
  - Diodes (single junction solid state devices)
  - Transistors (two junction solid state devices)
- Demonstrate the proper use of electrical test equipment with active electronic devices.

EETC 1311 – Electrical Circuits Objectives:

[O1] Demonstrate an understanding of relationship between voltage, current, resistance, and power in DC and AC circuits.

[O2] Demonstrate an understanding of series, parallel, and series-parallel circuits in DC and AC circuits.

[O3] Demonstrate proper use of electrical test equipment.

[O4] To provide practical examples of common electrical tasks found in industry.

[O5] To discuss and provide hands-on experience in DC/AC circuit analysis.