



AGENDA

METROPOLITAN BOARD OF PUBLIC EDUCATION

2601 Bransford Avenue, Nashville, TN 37204

Regular Meeting – February 22, 2022 – 5:00 p.m.

Christiane Buggs, Chair

I. CONVENE and ACTION

- A. Call to Order
- B. Establish Quorum
- C. Pledge of Allegiance
- D. Adoption of Agenda

II. AWARDS and RECOGNITIONS

- A. McDonald's All-American Brandon Miller
- B. Walter Overton Distinguished Alumnus
- C. Career-Technical Education Pathway Recognition

III. DIRECTOR'S REPORT

- A. Core Tenet 3 - Create and support engaging, rigorous, and personalized learning experiences for all students.

IV. GOVERNANCE ISSUES

- A. Actions
 - 1. Consent
 - a. Approval of Minutes - 01/25/2022 - Minutes
 - b. Awarding of Purchases and Contracts
 - 1. Alan Jay Automotive Management
 - 2. Allegis Group Holdings, Inc. dba TEKsystems, Inc.
 - 3. Collier Roofing Company, Inc.
 - 4. D & J Enterprise, LLC
 - 5. Discovery Education, Inc. (2 contracts)
 - 6. Eskola, LLC
 - 7. FilterPro USA, LLC
 - 8. Gilbert, McLaughlin, Casella, Architects, PLC
 - 9. Goodwyn, Mills & Cawood, LLC
 - 10. Help Desk Technology
 - 11. HMK Architects, PLLC
 - 12. Jarvis Award, Sign, Flag Company
 - 13. JJCA
 - 14. Lee Company (2 contracts)
 - 15. Melvin L. Gill dba Melvin Gill Architects

Metropolitan Board of Public Education

Agenda

February 22, 2022

16. Moody Nolan, Inc.
17. School Nurse Supply
18. STARS Nashville
19. The Sherwin-Williams Company
20. TMPartners, PLLC
21. TriStar Mechanical, LLC

- c. Teacher Tenure
- d. Special Course Approval

V. BOARD DISCUSSION

- A. Masks

VI. COMMITTEE REPORTS

VII. ANNOUNCEMENTS

VIII. WRITTEN INFORMATION TO THE BOARD

- A. Sales Tax Collections as of February 20, 2022

IX. ADJOURNMENT

METROPOLITAN NASHVILLE PUBLIC SCHOOL BOARD MEETING –
January 25, 2022

Members Present: Christiane Buggs, chair, Emily Masters, Abigail Tylor, Freda Player-Peters, Sharon Gentry (left at 6:00 pm), Gini Pupo-Walker and John Little

Student members: Abenezer Haile and Angelie Quimbo

Members Absent: Fran Bush and Rachael Anne Elrod - Vice-chair

Meeting called to order: 5:00 p.m.

CONVENE AND ACTION

- A. Call to Order
Christiane Buggs called the meeting to order.
- B. Pledge of Allegiance – Mark North, Athletic Director for High Schools.

AWARDS AND RECONGNITIONS

- A. Top Scholars in National Regeneron Science Talent Search – The Board and Dr. Battle recognized the top scholars.
- B. Hillsboro High School LEED Gold Award – The Board and Dr. Battle recognized Hillsboro High School.
- C. TSSAA Academic Achievement Awards – The Board and Dr. Battle recognized MNPS student athletes for winning TSSAA awards.
- D. Student Ambassadors - Maplewood High School student ambassadors gave the Board and Dr. Battle a brief update of their academies.

DIRECTOR'S REPORT

- A. Dr. Battle presented a report on Core Tenet 3 - Create and support engaging, rigorous, and personalized learning experiences for all students. Dr. Randolph and Dr. Springer presented reports to the Board.

GOVERNANCE ISSUES

- A. 1. Consent
 - a. Approval of Minutes – 12/14/2021 - Minutes
 - b. Awarding of Purchases and Contracts
 - 1. Backfield in Motion
 - 2. Boys & Girls Clubs of Middle Tennessee
 - 3. Four Seasons, Inc.
 - 4. Navigate360, LLC
 - 5. Turnip Green Creative Reuse
 - 6. YMCA of Middle Tennessee
 - c. Board Policies - 1.206 Student Board Members 4.209 Alternative Credit Options, 4.603, Promotion and Retention, 4.606 Graduation Activities, 6.310, Dress Code, 6.4001, Student Surveys, Analyses, and Evaluation
 - d. Approval of Capital Improvement Budget

Motion to approve the consent agenda.

By Gini Pupo-Walker, seconded Freda Player-Peters

Motion Passes

Vote: 6-0

COMMITTEE REPORTS

- A. Gini Pupo-Walker gave a brief Governance Committee update.
- B. Emily Masters gave a brief Advocacy Committee update.

ANNOUNCEMENTS

- A. Angelie Quimbo thanked the Board for their hard work and support.
- B. Abigail Tylor announced that ACT Prep online is available for all juniors.
- C. Emily Masters that the Optional School Application Process was open for applications. She announced that the next PAC Townhall would be held on February 22nd.

- D. John Little announced that he attended the Leadership Hermitage Donelson meeting.
- E. Gini Pupo-Walker offered condolences to the family of Huey Jackson a MNPS staff member at Hillsboro High School.
- F. Abenezer Haile announced that the Nashville Public Libraries were looking for volunteers and he encouraged students to taken advantage of that opportunity.
- G. Christiane Buggs announced that the Pearl Cohn Cluster PAC held a meeting on January 24th.

WRITTEN INFORMATION TO THE BOARD

- A. Sales Tax Collections as of January 20, 2021

Ms. Buggs adjourned the meeting at 6:28 p.m.



Chris M. Henson
Board Secretary

Christiane Buggs
Board Chair

Date

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(1) VENDOR: Alan Jay Automotive Management

SERVICE/GOODS (SOW): Provision of twenty (20) Toyota Highlander L-4 Hybrid LE AWD SUV's.

SOURCING METHOD: State of Tennessee Sourcing Event 31220-11965

TERM: Immediate Purchase

FOR WHOM: Transportation

COMPENSATION: Total compensation for this purchase is not to exceed \$807,960.

OVERSIGHT: Transportation

EVALUATION: Quality of products and timeliness of services provided.

MBPE CONTRACT NUMBER: State of Tennessee SWC 209

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(2) VENDOR: Allegis Group Holdings, Inc. dba TEKsystems, Inc.

SERVICE/GOODS (SOW): Amendment #1 extends the contract term through June 10, 2026 and increases the compensation of the contract by \$1,650,000. Contract is for the provision of temporary staffing for Technology Services. The contractor may temporarily fill a variety of different positions including contract-to-hire, temporary contractor services, and recruitment for hard-to-fill Information Technology positions. The available funds to cover the contracting costs will come from vacant positions that would not be filled until the contractor is approved to move into the full-time position.

SOURCING METHOD: Amendment of a Previously Board Approved Contract

TERM: February 23, 2022 through June 10, 2026

FOR WHOM: Technology Services

COMPENSATION: Amendment #1 increases the total compensation of the contract by \$1,650,000.

Total compensation for this contract is not to exceed \$1,900,000.

OVERSIGHT: Technology Services

EVALUATION: Quality and timeliness of the services provided.

MBPE CONTRACT NUMBER: 7515285

SOURCE OF FUNDS: Various Operating Budgets and Federal Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(3) VENDOR: Collier Roofing Company, Inc.

SERVICE/GOODS (SOW): Provision of roofing service and repair on non-capital projects on an as-needed basis.

SOURCING METHOD: ITB 206236

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$1,750,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7526998

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(4) VENDOR: D & J Enterprise, LLC

SERVICE/GOODS (SOW): Provision of roofing service and repair on non-capital projects on an as-needed basis.

SOURCING METHOD: ITB 206236

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$1,750,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7526999

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(5) VENDOR: Discovery Education, Inc.

SERVICE/GOODS (SOW): Provision of twenty-one (21) site licenses to the Discovery Education Experience for MNPS high schools. The Discovery Education Experience is a flexible K-12 learning platform that connects educators to a vast collection of compelling high-quality, standards-aligned content, ready-to-use digital lessons, and professional learning resources.

SOURCING METHOD: Negotiated Services

TERM: March 1, 2022 through June 30, 2024

FOR WHOM: MNPS high schools

COMPENSATION: \$252,000 funded by the Caterpillar Foundation Sponsorship

Total compensation for this contract is \$0 paid by MNPS.

OVERSIGHT: Curriculum & Instruction

EVALUATION: Based on the quality and effectiveness of the services provided.

MBPE CONTRACT NUMBER: 7526289

SOURCE OF FUNDS: Caterpillar Foundation Sponsorship

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(5) VENDOR: Discovery Education, Inc.

SERVICE/GOODS (SOW): Provision of thirty (30) site licenses to the Discovery Education Experience for MNPS middle schools. The Discovery Education Experience is a flexible K-12 learning platform that connects educators to a vast collection of compelling high-quality, standards-aligned content, ready-to-use digital lessons, and professional learning resources.

SOURCING METHOD: Negotiated Services

TERM: March 1, 2022 through June 30, 2023

FOR WHOM: MNPS middle schools

COMPENSATION: \$159,999.90 funded by the Allstate Foundation Sponsorship

Total compensation for this contract is \$0 paid by MNPS.

OVERSIGHT: Curriculum & Instruction

EVALUATION: Based on the quality and effectiveness of the services provided.

MBPE CONTRACT NUMBER: 7526290

SOURCE OF FUNDS: Allstate Foundation Sponsorship

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(6) VENDOR: Eskola, LLC

SERVICE/GOODS (SOW): Provision of roofing service and repair on non-capital projects on an as-needed basis.

SOURCING METHOD: ITB 206236

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$1,750,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7526997

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(7) VENDOR: FilterPro USA, LLC

SERVICE/GOODS (SOW): Contract is for HVAC filters and services for all MNPS facilities.

SOURCING METHOD: RFP 202242

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$2,500,000.

OVERSIGHT: Facilities

EVALUATION: Based on monthly filter audits.

MBPE CONTRACT NUMBER: 7527576

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(8) VENDOR: Gilbert, McLaughlin, Casella, Architects, PLC

SERVICE/GOODS (SOW): Provision of architectural services for the renovations and additions at Haywood Elementary School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Haywood Elementary School

COMPENSATION: Total compensation for this contract is not to exceed \$1,607,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527344

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(9) VENDOR: Goodwyn, Mills & Cawood, LLC

SERVICE/GOODS (SOW): Provision of architectural services for the music department renovations and additions at Meigs Middle School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Meigs Middle School

COMPENSATION: Total compensation for this contract is not to exceed \$160,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527339

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(10) VENDOR: Help Desk Technology

SERVICE/GOODS (SOW): Amendment #2 extends the contract term through July 31, 2023 and increases the total compensation by \$75,000. Contract is for the subscription to the ServicePRO software assurance plan.

SOURCING METHOD: Amendment of a Previously Approved Board Contract

TERM: February 28, 2022 through July 31, 2023

FOR WHOM: Technology Services and Human Resources

COMPENSATION: Amendment #2 increases the total compensation of the contract by \$75,000.

Total compensation for this contract is not to exceed \$249,000.

OVERSIGHT: Technology Services and Human Resources

EVALUATION: Quality and timeliness of the services provided.

MBPE CONTRACT NUMBER: 7486211

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(11) VENDOR: HMK Architects, PLLC

SERVICE/GOODS (SOW): Provision of architectural services for the renovations and additions at Old Center Elementary School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Old Center Elementary School

COMPENSATION: Total compensation for this contract is not to exceed \$495,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527346

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(12) VENDOR: Jarvis Award, Sign, Flag Company

SERVICE/GOODS (SOW): To remove and replace marquees at eight (8) MNPS schools.

SOURCING METHOD: State of Tennessee

TERM: Immediate Purchase

FOR WHOM: Apollo Middle School
Cole Elementary School
Hattie Cotton STEM Magnet Elementary School
McGavock High School
Murrell School
Old Center Elementary School
Pearl Cohn High School
Stratford STEM Magnet High School

COMPENSATION: Total compensation for this purchase is not to exceed \$369,080.

OVERSIGHT: Facilities

EVALUATION: Quality of products and timeliness of services provided.

MBPE CONTRACT NUMBER: State of Tennessee SWC 106

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(13) VENDOR: JJCA

SERVICE/GOODS (SOW): Provision of architectural services for a new replacement school for Percy Priest Elementary School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Percy Priest Elementary School

COMPENSATION: Total compensation for this contract is not to exceed \$2,000,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527347

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(14) VENDOR: Lee Company

SERVICE/GOODS (SOW): Provision of plumbing service and repair on non-capital funded projects that are estimated to be less than \$25,000.

SOURCING METHOD: ITB 206233

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$2,500,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527142

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(14) VENDOR: Lee Company

SERVICE/GOODS (SOW): Preventative maintenance of chillers for HVAC systems in MNPS schools.

SOURCING METHOD: RFP 201239

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$259,914.

OVERSIGHT: Facilities

EVALUATION: Based on inspections, reports, and follow ups of the work performed to ensure MNPS chillers are running correctly and efficiently.

MBPE CONTRACT NUMBER: 7527271

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(15) VENDOR: Melvin L. Gill dba Melvin Gill Architects

SERVICE/GOODS (SOW): Provision of architectural services for the playroom addition at Napier Elementary School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Napier Elementary School

COMPENSATION: Total compensation for this contract is not to exceed \$198,955.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527340

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(16) VENDOR: Moody Nolan, Inc.

SERVICE/GOODS (SOW): Provision of architectural services for a prototype elementary school for the Overton, Cane Ridge, and Antioch clusters.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Overton, Cane Ridge, and Antioch clusters

COMPENSATION: Total compensation for this contract is not to exceed \$6,154,450.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527345

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(17) VENDOR: School Nurse Supply

SERVICE/GOODS (SOW): Provision of one hundred and thirty (130) SECA 869 flat scales with cable remote display and one hundred and twenty (120) SECA 2134 portable stadiometers.

SOURCING METHOD: Buyboard Cooperative

TERM: Immediate Purchase

FOR WHOM: All MNPS students

COMPENSATION: Total compensation for this purchase is not to exceed \$55,305.

OVERSIGHT: Student Health Services

EVALUATION: Quality of products and timeliness of services provided.

MBPE CONTRACT NUMBER: Buyboard 610-20

SOURCE OF FUNDS: Federal Funds - ELC COVID Testing Grant

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(18) VENDOR: STARS Nashville

SERVICE/GOODS (SOW): Amendment #1 revises language in the Duties and Responsibilities section of the contract, revises Exhibit A pricing, and increases the total compensation by \$1,500,000. Contract is for the provision of counseling and case management services from qualified individuals (Master's level counselors) for each MNPS school site or Family Resource Center that requests these services.

SOURCING METHOD: Amendment of a Previously Board Approved Contract

TERM: February 23, 2022 through June 30, 2026

FOR WHOM: Any MNPS school requesting these services

COMPENSATION: Amendment #1 increases the total compensation of the contract by \$1,500,000.

Total compensation for this contract is not to exceed \$2,000,000.

OVERSIGHT: Student Support Services

EVALUATION: Based on the quality and performance of the services provided.

MBPE CONTRACT NUMBER: 7512018

SOURCE OF FUNDS: Various School-based Operating Budgets and Federal Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(19) VENDOR: The Sherwin-Williams Company

SERVICE/GOODS (SOW): Provision of paint and supplies on an as-needed basis.

SOURCING METHOD: RFP 211237

TERM: February 23, 2022 through February 22, 2027

FOR WHOM: MNPS schools and facilities

COMPENSATION: Contractor shall be paid in accordance with Exhibit A of the contract.

Total compensation for this contract is not to exceed \$2,500,000.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527164

SOURCE OF FUNDS: Operating Budget

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(20) VENDOR: TMPartners, PLLC

SERVICE/GOODS (SOW): Provision of architectural services for the renovations and additions at Paragon Mills Elementary School.

SOURCING METHOD: RFQ 204238

TERM: February 23, 2022 through Project Completion

FOR WHOM: Paragon Mills Elementary School

COMPENSATION: Total compensation for this contract is not to exceed \$2,007,350.

OVERSIGHT: Facilities

EVALUATION: The quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 7527341

SOURCE OF FUNDS: Capital Funds

GOVERNANCE ISSUES

A. ACTIONS

1. CONSENT

b. AWARDING OF PURCHASES AND CONTRACTS

(21) VENDOR: TriStar Mechanical, LLC

SERVICE/GOODS (SOW): Amendment #2 to increase the contract value by \$750,000.
Contract is for HVAC services for all MNPS facilities.

SOURCING METHOD: Amendment of a Previously Board Approved Contract

TERM: February 23, 2022 through February 26, 2024

FOR WHOM: MNPS schools and facilities

COMPENSATION: Amendment #2 increases the contract value by \$750,000.

Total compensation for this contract is not to exceed \$2,250,000.

OVERSIGHT: Facilities

EVALUATION: Quality and timeliness of goods and services provided.

MBPE CONTRACT NUMBER: 10194

SOURCE OF FUNDS: Operating Budget

Educators Eligible for Tenure Pending Board of Education Approval February 2022

Educators are eligible for tenure in Tennessee when they have completed a probationary period of 5 years (45 months) within a seven year period and have received a TEAM evaluation composite score (overall Level of Effectiveness score) of 4 (above expectations) or 5 (significantly above expectations) for the last two years of the probationary period as a non-tenured teacher (Tennessee Code Annotated 49-5-503). As well, educators are eligible for tenure reinstatement when they have served a two-year probationary term after moving from tenured status to probationary status.

We are pleased to present the following 240 educators who meet eligibility requirements to receive tenure in Metro Nashville Public Schools. Educators are listed with their teaching license number. We commend them for their outstanding performance in the classroom and commitment to our district.

Name	TN License #	Location/Department
Abernathy, Bree Matlock	237512	MNPS Hillwood High
Abid Ali, Kathryn M	516187	MNPS Antioch Middle
Acevedo, Silvia	634936	MNPS J.E. Moss Elementary
Acker, Christian	700600	MNPS Croft Margaret Elise Middle
Adkins, Gwendolyn Ann	178172	MNPS H. G. Hill Middle
Alexander, Courtney H	544482	MNPS Thurgood Marshall Middle
Alhasan, Jaclene Salma	598376	MNPS Cole Elementary
Allen, Megan Currie	610972	MNPS Speech
Anderson, Caden Charles	630726	MNPS Martin Luther King Jr. Magnet
Anson, Katie	647412	MNPS Inglewood Elementary
Antanyous, Samuel B	572487	MNPS ELL
Banks, Angela Gabrielle	630033	MNPS Goodlettsville Elementary
Beasley, Patti Marie	700041	MNPS DuPont Elementary
Bednarczyk, Leah Tess	640026	MNPS Speech
Belcher, Margaret Elizabeth	644371	MNPS Harpeth Valley Elementary
Benion, Kendra Nakiyah	615477	MNPS Ida B. Wells Elementary EO
Bernstein, Anna	644137	MNPS John Trotwood Moore Middle
Bignall, Seliene E	291722	MNPS Warner Elementary EO
Birchett, Thomas M	564247	MNPS Cane Ridge Elementary
Black, Amanda J	200088	MNPS Vision
Black, Megan L	632336	MNPS Martin Luther King Jr. Magnet
Blanford, Sarah	637937	MNPS May Werthan Shayne Elementary
Blumhardt, Daniel Joseph	641074	MNPS Hermitage Elementary
Bonkowski, Jamie Frances	264515	MNPS Bellevue Middle
Boone, Jillian H	617695	MNPS Cane Ridge Elementary
Bricker, Bayli Russ	640804	MNPS John F. Kennedy Middle
Brock, Jarren Bradley	605336	MNPS Exceptional Education
Brown, Kendrea Kalysia	645091	MNPS Haynes Middle
Brown, Michaela Diane	585437	MNPS Ruby Major Elementary
Brown, Tayla Kiara	645088	MNPS Cambridge Early Learning Center
Brown, Victoria	631386	MNPS Norman Binkley Elementary
Brunetti, Lorie Kristina	634661	MNPS Rosebank Elementary
Bryant, Morgan D	613160	MNPS Stratford STEM Magnet High
Buckingham, Olympia Felice	589737	MNPS Antioch High
Bunnell, Mckayla Rena	632086	MNPS A. Z. Kelley Elementary

Burns, Shiloh Desaree	632971	MNPS Hickman Elementary
Caldwell, Cedric J	146874	MNPS Pearl-Cohn High
Calverley, Laura L	701660	MNPS Sylvan Park Elementary
Calvin, Lamarcus Desmond	289281	MNPS Donelson Middle
Campbell, Ashley M	700893	MNPS May Werthan Shayne Elementary
Campbell, Gretchen	626252	MNPS Granbery Elementary
Carper, Kelly A	647539	MNPS John B. Whitsitt Elementary
Caruthers, Jermaine A	574631	MNPS Warner Elementary EO
Cash, Adam Dale Sr	584103	MNPS Vision
Cassinari, Hannah Elizabeth	635816	MNPS McMurray Middle
Casteel, Heather N	611937	MNPS Maplewood High
Castleberry, Lucille Imani	643194	MNPS Lockeland Elementary
Clark, Emma A	700833	MNPS Chadwell Elementary
Clemens, Erin Castleman	637340	MNPS Haywood Elementary
Cobb, Alicia N	542930	MNPS Cane Ridge Elementary
Cochran, Erin M	644522	MNPS Stratford STEM Magnet High
Connole, Alexis Rae	607845	MNPS Crieve Hall Elementary
Crawley, Morgan Taylor	609639	MNPS Granbery Elementary
Cullen, Katherine	591951	MNPS Dan Mills Elementary
Currey, Andrew David	639077	MNPS Cora Howe School
Dale, Sonja Lauren	561593	MNPS Ross Early Learning Center
Davis, Chandelle	637350	MNPS Crieve Hall Elementary
Davis, Natasha Ivey	596419	MNPS Hume-Fogg Magnet High
Davis, Rachel	606288	MNPS Inglewood Elementary
Defreeze, Kimberly Ann	646372	MNPS John Overton High
Denney, Addison Corey	606263	MNPS Dodson Elementary
Detrude, Elise	631435	MNPS Westmeade Elementary
Dieckmann, Katharine Leslie	597862	MNPS Harpeth Valley Elementary
Dobransky, Laura	646428	MNPS Eakin Elementary
Dotson, Bradley A	543017	MNPS Rosebank Elementary
Douthwaite, Christine Nicole	583835	MNPS Tulip Grove Elementary
Drake, Rebecca Janna	541758	MNPS May Werthan Shayne Elementary
Eaby, Cheryl Edwards	553824	MNPS Amqui Elementary
Eberhardt, Rayna R	607050	MNPS Cane Ridge High
Edgens, Kari E.	622796	MNPS East Nashville Magnet Middle
Eguiarte, Jamie Marie	631732	MNPS Rosebank Elementary
Fabie, Benjamin David	626281	MNPS John Overton High
Farmer, Tiphonie Renee	630795	MNPS Hume-Fogg Magnet High
Fitzpatrick, Katherine Lee	566599	MNPS Hume-Fogg Magnet High
Flora, Lara Krech	565581	MNPS Andrew Jackson Elementary
Fragosa, Elizabeth	640100	MNPS Antioch High
Frank, Alexander Joseph	636533	MNPS Hillsboro High
Fregoe, Brandi	527096	MNPS Stratford STEM Magnet High
Friend, Jennabeth Irene	628576	MNPS Cole Elementary
Fugett, Glenn Gregory	634355	MNPS Instructional Support
Fullerton, Laura Ann	623275	MNPS Rosebank Elementary
Gabrys, Michael E	504633	MNPS Martin Luther King Jr. Magnet
Geels, Elyse Marie	621248	MNPS Ruby Major Elementary

Gibson, Grace Eatherly	646175	MNPS School Social Work
Giles, Danielle S.	623036	MNPS Antioch High
Goad, Casey Jo Jo Piper	701019	MNPS Special Ed Early Childhood
Godefroy, Johanna	545204	MNPS The Academy at Hickory Hollow
Goelzhauser, Rachel Marie	644306	MNPS Meigs Middle Magnet
Good, Katie Suzanne	563830	MNPS Hillsboro High
Gooden, Veronica Michelle	593750	MNPS Mount View Elementary
Gordon, Ty L	521094	MNPS Jones Elementary
Gordon-Aziz, Princess Elizabeth	257927	MNPS Nashville Big Picture High
Graham, Joseph S	630293	MNPS Martin Luther King Jr. Magnet
Grayson, Kaitlin Danielle	701927	MNPS Vision
Greene, Kristopher Thomas	529524	MNPS Rosebank Elementary
Greer, Cynthia Lynn	517858	MNPS Glencliff Elementary
Griffin, Julie L	700283	MNPS Charlotte Park Elementary
Griffin, Rachel Egger	546491	MNPS ELL
Grimes, Rebecca Michelle	602221	MNPS Goodlettsville Elementary
Grueser, Jaylin	636431	MNPS Harpeth Valley Elementary
Guidry, Adam V	561753	MNPS Glencliff High
Gurabardhi, Alethea Short	636201	MNPS Wright Middle
Gutierrez, Dianna	621888	MNPS Glencliff Elementary
Hackney, Amanda	554201	MNPS Tusculum Elementary
Hafez, Elaine Hannah	628588	MNPS Norman Binkley Elementary
Hall, Lindsey M	647608	MNPS Tusculum Elementary
Handschuh Plowman, Katrina Lynn	700117	MNPS Exceptional Education
Haney, Shawna	630315	MNPS May Werthan Shayne Elementary
Harkins, Ryan Joseph	641200	MNPS Isaac Litton Middle
Harrell, Milisa A.	240195	MNPS Hull-Jackson Elementary
Harris, Briana Danette	624781	MNPS Cambridge Early Learning Center
Hebert, Kevin J	638322	MNPS Wright Middle
Hill, Kellee N	510870	MNPS Whites Creek High
Hofmeister, Amanda	285415	MNPS Special Ed Early Childhood
Horton, Danielle Alaine	597293	MNPS Croft Margaret Elise Middle
Howard, Mononika Varsha	565702	MNPS Donelson Middle
Hughes-Tate, Sabrina	591296	MNPS Antioch Middle
Hunt, Onieka Diane	626380	MNPS Apollo Middle
Jarrell, Hallie Louise	627385	MNPS John Trotwood Moore Middle
Jenkins, Christian David	600600	MNPS Hume-Fogg Magnet High
Jernigan, Mary Katelyn (Katelyn)	591035	MNPS Tusculum Elementary
Johnson, Amanda Nicole	573123	MNPS Dan Mills Elementary
Jones, Erial R	593816	MNPS Napier Elementary EO
Jones, Heather M	640922	MNPS Eagle View Elementary
Jordan, Ashley Michelle	624799	MNPS Madison Middle
Judd, Laura Hippensteel	535421	MNPS Ivanetta H. Davis Learning Center at Bordeaux
Katz, Michelle Marie	643069	MNPS Charlotte Park Elementary
Kearney, Justin R.	548995	MNPS Martin Luther King Jr. Magnet
Keith, Gibson Merrill	173525	MNPS Instructional Support
Kirchmyer, Ginger	594856	MNPS DuPont Hadley Middle
Koger-Hall, Johnna Yvonne	641151	MNPS Murrell School

Lamb, Hannah E	635203	MNPS Eakin Elementary
Lawless, Edward R	700764	MNPS McGavock High
Littrell, Morgan Annette	640145	MNPS Exceptional Education
Makamu, Heather	545926	MNPS Instructional Support
Manderfield, Audrey Ann	700800	MNPS Tulip Grove Elementary
Mann, Anna Elizabeth	627568	MNPS Stratton Elementary
Martin, Gloria Maria	573676	MNPS Chadwell Elementary
Martinez, Samantha Cassidy	637083	MNPS Cane Ridge Elementary
Martuch, Gretchen	625353	MNPS Glenclyff Elementary
Maynard, Hope Nicole	558625	MNPS Sylvan Park Elementary
Mcdonald, Cherronda Michelle	502416	MNPS Cane Ridge Elementary
Merritt, Robert Barrington	507748	MNPS Stratford STEM Magnet High
Middlebrook, Dana Michelle	581042	MNPS Nashville Big Picture High
Middlebrooks, Meredith Freeman	593365	MNPS Sylvan Park Elementary
Mikhaeil, Ereen Ayoub	539807	MNPS Mount View Elementary
Miley, Nathan	638396	MNPS Crieve Hall Elementary
Miller, Hanna Alicia	615027	MNPS Glenview Elementary
Mitchell, Melissa Marie	527190	MNPS Johnson Alternative Learning Center
Morgan, Alissa Carol	635306	MNPS J.E. Moss Elementary
Morris, Ann Marie	185131	MNPS Cole Elementary
Morrison, Sara	647642	MNPS Shwab Elementary
Morrow, Kimberly S	602308	MNPS DuPont Hadley Middle
Morton, Lindsay Vargo	633676	MNPS Speech
Mumuni, Samad Dimbie	213812	MNPS Lakeview Elementary
Nelson, Susan Rene	536448	MNPS Henry C. Maxwell Elementary
Nichols, Jenny D	627466	MNPS Martin Luther King Jr. Magnet
Palumbo, Alison Rae	636642	MNPS Hillsboro High
Parker Amadi, Alicia	638448	MNPS Cane Ridge High
Peterman, Kendal Herring	627184	MNPS Cole Elementary
Peterman, Lyndsey M	585827	MNPS Cole Elementary
Petty, Jo Beth	525722	MNPS Curriculum and Instruction MS
Pheiffer, Errin N	587001	MNPS School Social Work
Phelps, Sherrye A	516518	MNPS Paragon Mills Elementary
Pool, David	571133	MNPS Cane Ridge High
Price, Tara Denise	620447	MNPS Wright Middle
Privett, Ashley	700705	MNPS McMurray Middle
Purvis, Melinda	204483	MNPS Paragon Mills Elementary
Quarles, Christine E	644873	MNPS John B. Whitsitt Elementary
Quinn, Lisa Lame	284935	MNPS Meigs Middle Magnet
Ramsey, Lisa Marie	196536	MNPS Percy Priest Elementary
Reid, Chrystalyn Marie	700350	MNPS School Social Work
Reid, Sheryl Rae	615169	MNPS John F. Kennedy Middle
Riley, Emily D	632233	MNPS John Overton High
Robertson, Danielle Marie	594790	MNPS Waverly-Belmont Elementary
Rochelle, Elizabeth Rose	640800	MNPS Crieve Hall Elementary
Rodriguez, Giovanna Ixchel	607581	MNPS Martin Luther King Jr. Magnet
Rogers, Callie Margaret	634363	MNPS Cane Ridge Elementary
Rogers, Cassietta Marie	644417	MNPS Amqui Elementary

Rolfe, Josalyn Cook	592810	MNPS Mount View Elementary
Ross, Jacob A	626965	MNPS Jere Baxter Middle
Royal, Brooke Kelley	617693	MNPS McGavock Elementary
Ruiz, Lizbeth	613034	MNPS John Overton High
Sales, Jason R.	631659	MNPS Hull-Jackson Elementary
Salih, Dejeen Rizgar	595728	MNPS Robert Churchwell Elementary
Sample, Mackenzie Katelynn	618760	MNPS Martin Luther King Jr. Magnet
Scire, Ashley R	625389	MNPS Croft Margaret Elise Middle
Seaver, Lucy Sears	179101	MNPS Stratford STEM Magnet High
Seils, Bailey	605672	MNPS Harris-Hillman Special Education
Selbrade, Tyler	644876	MNPS Martin Luther King Jr. Magnet
Sevier, Amanda Jane	509354	MNPS Tusculum Elementary
Sharp, Jennifer Leigh	600849	Technology Services
Shepherd, Laura Elizabeth	700489	MNPS Donelson Middle
Simon, Jennifer	700442	MNPS Speech
Sinclair, Erica Lee	568365	MNPS ELL
Smiley, Lisa Roland	611657	MNPS Glenclyff Elementary
Smith, Ashley C	590175	MNPS Rosebank Elementary
Smith, Brandy Christine	606830	MNPS Tusculum Elementary
Smith, Jonathan	613324	MNPS John Overton High
Smith, Kahla M	617066	MNPS J.E. Moss Elementary
Smith, Myra Louise	523926	MNPS Ida B. Wells Elementary EO
South, Matthew	629383	MNPS East Nashville Magnet Middle
Stapleton, Aaron	200098	MNPS Creswell School of the Arts Prep Middle
Stevens, Brittany Paige	630498	MNPS Dan Mills Elementary
Stevens, Kevin Thomas	615688	MNPS Martin Luther King Jr. Magnet
Stewart, Jamaal L	615867	MNPS East Nashville Magnet High
Storey, Colleen Marie	645938	MNPS Crieve Hall Elementary
Taylor, Elizabeth Judith Handy	621893	MNPS H. G. Hill Middle
Taylor, Paige Marie	566979	MNPS Glendale Elementary
Thompson, Breanna Taylor	606045	MNPS Lakeview Elementary
Thompson, Katherine Rachel	644453	MNPS Croft Margaret Elise Middle
Thurman, Alexandra Nicole	623805	MNPS Charlotte Park Elementary
Tilden, Kaitlin Crofford	592358	MNPS Andrew Jackson Elementary
Tingler, Elizabeth Mae	640984	MNPS Paragon Mills Elementary
Trest, Kelly Claire	631716	MNPS Speech
Trice, Tonja Yvette	287305	MNPS Moses McKissack Middle
Triplett, Kelly Lynne	615149	MNPS Glengarry Elementary
Tucker, Alison J	634792	MNPS Madison Middle
Tyus, Dawn	637998	MNPS Cane Ridge High
Vadas, Natalie A	701715	MNPS Cora Howe School
Vandrasik, Stacey M	547812	MNPS John B. Whitsitt Elementary
Vasili, Patricia	702054	MNPS Fall Hamilton Elementary EO
Wallace, Caroline Lay	632260	MNPS Haywood Elementary
Walls, Cara C	640802	MNPS Ivanetta H. Davis Learning Center at Bordeaux
Walls, Jacob Kendall	584357	MNPS West End Middle
Warburton, Sarah Ruth Wheeler	637734	MNPS McMurray Middle
Warren, Latoshia Monique	609885	MNPS Thomas A. Edison Elementary

Watson, Marshavia Shaerice	633559	MNPS Amqui Elementary
Watts, Sarah E	644475	MNPS Waverly-Belmont Elementary
White, Francis Earl	629184	MNPS Federal Programs
Wigginton, Denise M	236669	MNPS John Overton High
Williams, Abigail H	583006	MNPS Haywood Elementary
Williams, Bailey Kristine	643164	MNPS John B. Whitsitt Elementary
Williams, Lauren Kay	700192	MNPS Martin Luther King Jr. Magnet
Willis, Leslie	293980	MNPS Donelson Middle
Witzgall, Tanoa Mechiele Maddox	640149	MNPS Hearing Impaired
Yates, Jordan Kae	640256	MNPS Carter Lawrence Elementary
Youngman, Shannon Marie	281575	MNPS John Overton High
Youtsey, Amanda Di Ferdinando	700681	MNPS Ross Early Learning Center
Yu, Sheng Huei (Betty)	578427	MNPS ELL

Reinstatement of Tenure

Tenured educators with a break in service having left and since returned to the district must serve a two year probation period of service upon their return in order to again be eligible for tenure. Educators below meet the criteria to have tenure reinstated.

Name	TN License #	Location/Department
Batson, Ashante Blackman	240635	MNPS Croft Margaret Elise Middle
Bell, Sharita Emerson	202108	MNPS Ida B. Wells Elementary EO
Blanchard, Sarah B	188759	MNPS Stanford Elementary
Bradford, Marion	265294	MNPS Carter Lawrence Elementary
Brewer, Casey	517741	MNPS Norman Binkley Elementary
Bryan, Leslie Green	255667	MNPS John Trotwood Moore Middle
Campbell, Lenee	238387	MNPS Cockrill Elementary EO
Clarke, Tamika L.	194726	MNPS Casa Azafran Early Learning Center
Dawson, Chequita L	218908	MNPS William Henry Oliver Middle
Denning, Shana Walker	211321	MNPS Goodlettsville Elementary
Dudley, Kevin Lee	199403	MNPS Hillsboro High
Duren, Mark V	201079	MNPS Cora Howe School
Flatt, Amy	230998	MNPS Park Avenue Elementary EO
Floyd, Shannon Regina Childs	513577	MNPS Stratton Elementary
Fox, Layla Sledge	512158	MNPS Margaret Allen Middle
Gonzalez, Molly E	548021	MNPS Tusculum Elementary
Gould-Amescua, Rachel Anne	249803	MNPS McGavock High
Hector, Patrick A	199522	MNPS Hull-Jackson Elementary
Ihde, Heather	273863	MNPS Instructional Support
Johnson, Torri Deshun	239065	MNPS Jere Baxter Middle
Lee-Peery, Brenda	291823	MNPS J.E. Moss Elementary
McGrady, Nevella Lavern	516113	MNPS William Henry Oliver Middle
Miller, Robert L	204144	MNPS Glengarry Elementary
Sahli, Sandra M	206740	MNPS Una Elementary
Tyler, Cheryl A	266883	MNPS Margaret Allen Middle
Williams, Tim A	280014	MNPS Mount View Elementary
Winchester, Katrina Ann	178534	MNPS Stanford Elementary
Young, David A	106608	MNPS Hillsboro High



February 17, 2022

Kipp Nashville Collegiate High School
Composition I, II, III, IV:

Composition I - IV are writing courses where students learn the basics of effective focus, organization, and English language usage/mechanics in written communication. Students will write a series of Processed-Based Assessments (essays) in which they will receive feedback aligned to the Collegiate Writing Rubric. Each quarter, students will publish an Independent Performance Task, where they will be assessed on their growth and achievement in writing skill according to the Composition rubric. One of the primary goals of this course is also to build student skills in CCRS English standards in preparation for the ACT English subtest.



The Frontiers of Computing

Primary Career Cluster:	Science, Technology, Engineering, and Mathematics (STEM)
Course contact:	CTE.Standards@tn.gov
Course Code(s):	TBD
Prerequisite(s):	AP Computer Science Principles (G02H44)
Credit:	1
Grade Level:	10-12
Focus Elective Graduation Requirement:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other <i>STEM</i> courses.
Programs of Study (POS) Concentrator:	This course satisfies one out of two required courses that meet the Perkins V concentrator definition, when taken in sequence in the approved program of study.
Program of Study and Sequence:	This is the third course in the <i>Applied Computing in STEM Special Program of Study</i> .
Aligned Student Organization(s):	SkillsUSA: http://www.skillsusatn.org Technology Student Association (TSA): http://www.tntsa.org
Coordinating Work-Based Learning:	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://www.tn.gov/content/tn/education/career-and-technical-education/work-based-learning.html
Available Student Industry Certifications:	Credentials are aligned with post-secondary and employment opportunities and with the competencies and skills that students acquire through their selected program of study. For a listing of promoted student industry credentials, visit https://www.tn.gov/education/career-and-technical-education/student-industry-certification.html
Teacher Endorsement(s):	013, 125, 152, 153, 413, 434, 470, 474, 475, 476, 477, 582, 595, 740, 742, 925, 952, 953
Required Teacher Certifications/Training:	All endorsements will require either twelve semester hours of computer course work <u>or</u> the NOCTI test code 5906 Computer Programming certification.

Teacher Resources:

<https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-information-technology.html>

Best For All Central: <https://bestforall.tnedu.gov/>

Course-At-A-Glance

CTE courses provide students with an opportunity to develop specific academic, technical, and 21st century skills necessary to be successful in career and in life. There is no one way to create meaningful learning experiences for students. There are best practices available that data and students say impact long-term student learning. One of those best practices is to put student learning in context with their experiences.

Career and Technical Student Organizations (CTSOs) provide an opportunity for students to display their learning in the classroom and through regional, state, and/or national competition. Work-based Learning (WBL) consists of sustained and coordinated work-based activities that relate to the course content. These activities should occur at every level through a program of study. Below is a listing of possible CTSO connections and WBL activities for this course. This listing is intended to be an idea starter and not a comprehensive listing.

Using a Career and Technical Student Organization (CTSO) in Your Classroom

Putting the classroom learning into real life experiences is often what creates a meaningful learning experience for students, one that lasts beyond the exam and course. CTSOs are a great resource to create this type of learning for your students. They are also a great resource to showcase your students learning through regional, state, and national competitions. Possible connections for this course include the following. This is not an exhaustive list.

- Participate in CTSO Fall Leadership Conference to engage with peers by demonstrating logical thought processes and developing industry specific skills that involve teamwork and project management
- Participate in contests that highlight job skill demonstration; interviewing skills; community service activities, extemporaneous speaking, and job interview
- Participate in leadership activities such as National Leadership and Skills Conference, National Week of Service, 21st Century Skills

For more ideas and information, visit Tennessee SkillsUSA at www.skillsusatn.org.

Using Work-based Learning in Your Classroom

Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.

- **Standards 1-7** | Have students job shadow a Data, Analytics, and Visualization Engineer or Data Analyst.
- **Standards 8-13** | Have a security software developer, security engineer, or security analyst come and speak about their development process.
- **Standards 14-18** | Have students do project on machine learning partnered with industry professionals.
- **Standards 17-18** | Invite an industry professional to discuss ethics.
- **Standards 19-24** | Have students job shadow a project manager.

Course Description

The Frontiers of Computing (TFC) course challenges students who want to explore recent topics in computing that are especially relevant to careers in science, engineering and technology. The curriculum draws on knowledge students obtained in previous courses in this special program of study as it introduces modern computing concepts such as distributed computation, the internet of things, and machine learning. It also emphasizes how computing is applied in other STEM fields such as engineering, health, and earth sciences. Upon completion of this course, proficient students will demonstrate the use of algorithms to obtain, analyze and visualize data from online scientific databases and networked sensors, be able to utilize various internet-based tools and services from their programs as well as apply various advanced computing concepts like cybersecurity, machine learning and wireless communication in their projects.

Course content is reinforced through project-based, hands-on activities that enable students to work both individually and collaboratively in small groups on advanced problems that are culturally relevant and engaging while following the engineering design process.

Program of Study Application

This is the third course in the *Applied Computing in STEM Special Program of Study*. For more information on the benefits and requirements of implementing this program in full, please visit the STEM at <https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-stem.html>

Course Standards

Distributed Computing

0. Demonstrate code reuse by creating programming solutions using existing software libraries and web interfaces.
1. Create and efficiently use lists, matrices and multi-dimensional arrays of data in computer programs.
2. Create interactive data visualizations using online data sources and services to illustrate real world phenomena.
3. Design and develop computer programs working in team roles using collaborative tools.
4. Demonstrate the ability to use message passing for basic communication between two applications.

5. Design and implement a basic communication protocol between two computers.
6. Describe peer-to-peer & client-server network architectures including their limits and benefits.

Internet of Things (IoT) and Robotics

7. Demonstrate how to access, process and visualize live sensor data streams on a worldwide IoT platform.
8. Identify the kinds of sensors typical smartphones and tablets have and design programs that access, process and utilize the sensor data on a computer.
9. Create simple remote robot control algorithms that send wireless commands to the robots and utilizes sensor data received from the robot.
10. Explain the various affordances of different remote robot controller designs, particularly around the relationship between robot speed, communication latency, and precision.
11. Describe the various cyber vulnerabilities of open communication in a shared medium between computers, devices and robots and apply various ways to counteract them.
12. Explain what encryption is and the role it plays in securing communication. Utilize encryption in a computer program to secure a wireless communication channel.

Machine Learning

13. Define supervised, unsupervised, and reinforcement learning algorithms, and give examples of human learning that are similar to each algorithm.
14. Find patterns in data: model how machine learning constructs a reasoner for classification or prediction by adjusting the reasoner's parameters.
15. Explore Natural Language Processing (NLP) and sentiment analysis of English text. Explain how keywords help humans determine the sentiment of texts. Explain the benefits and limitations of using machines to analyze text.
16. Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.
17. Describe how data can be biased, and its effects on the communities it is taken from. Consider bias and think about how to counteract it. Explain how machines make decisions and predictions based on biased data provided. Test and refine computational artifacts to reduce bias and equity deficits.

Software Engineering

18. In teams or individually, develop a written proposal for the course project that includes a brief description of the project, list of features and a timeline of design and development. The course project is a computer program intended for personal expression or to address a societal issue. Example projects might include a) simulation of engineering systems or scientific phenomena, b) analysis and visualization of various data sources such as health metrics, economic indicators or climate trends, c) autonomous driving of a simulated vehicle, or d) using a smartphone and its sensors to create a robot controller, etc.
19. Apply engineering design and computer coding skills learned in this and previous courses to novel contexts. For example, develop skills in an emerging technology, such as autonomous driving or the Internet of Things, in support of the completion of the course project.

20. Design, develop and test a prototype. Collect and record relevant data, make modifications to prototypes, and communicate results over the course of the project's duration.
21. Conduct a peer project review cycle including prototype testing and written feedback. Utilize testing and evaluation results to refine and improve prototypes.
22. Create a technical report including background and problem definition, design constraints and methodology, data analysis, prototype and problem solution, conclusions, and recommendations for future research.
23. Design and present a technology-enhanced presentation to communicate the results of the project to both a technical and a non-technical audience. Include highlights of the design process, prototype challenges, and a self-reflection from the project development experience.