2020-2021

EAST HIGH SCHOOL

East EPO- University of Rochester & Rochester City School District

[INFORMATION TECHNOLOGY ACADEMY(ITA)]

INFORMATION TECHNOLOGY ACADEMY (ITA)

BACKGROUND/HISTORY

In 2002, East High School was asked by the National Academy Foundation to be one of eight pilot schools for their new Academy of Information Technology program. East's IT program as one of the first AOIT's inside the NAF Model played a pivotal role in design and curriculum of the AOIT pathways for what is now known as NAF *Be Ready for the Future*

In 2014 the decision was made to separate from the NAF model and the program was renamed and reconfigured as the Information Technology Academy.

Since 2005 hundreds of students have passed through the program attending colleges such as RIT, SUNY *Alfred, Canton, Brockport, Geneseo*, University of Buffalo, Monroe Community College and beyond; while others are using their technical skills in the military and workplace.

In 2021 ITA graduates can be found working in the IT field both locally and across the country in: *Software Development, Web Development/Design, Network Engineering, Biotechnology, System Architecture & Support, Help Desk* and more. Several graduates have even started their own companies.

PROGRAM OVERVIEW

The ITA program is a 4 year – 5 credit CTE program for students interested in any fields within the Department of Labors – **Information Technology Career Cluster:**

Information Support and Services,
Network Systems,
Programming and Software Development
Web and Digital Communications.

Through the ITA's four course pathway scholars will:

- Explore a variety of career areas in IT and the education/training/skill needed
- Look at the impact/future of Information Technology on society and work
- Build and support a PC; design, build and program miniature robots & drones
- Create/secure and maintain real and virtual networks
- Participate in designing and coding in Scratch/Python/Java/JavaScript
- Design and build websites including animations and image production
- Develop an industry proficiency level in MS Office Applications

Note: Students in the program also have opportunities for high school job shadowing, career exploration and internship in the IT field

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The ITA shares the same mission/vision as all of the career pathways at East:

Making connections between the classroom and the workplace by integrating career-focused curriculum and embedded performance tasks, coupled with opportunities for real world applications, and finally prepare students to go on for post-secondary studies and entry level employment in the career path.

All graduates of the Career Pathways at East should be able to:

1. Utilize critical thinking to make sense of problems and persevere in solving them. Sue
2. Demonstrate creativity and innovation while applying appropriate academic and technical skills to produce work that meets college and workplace standards.
3. Work productively in teams while using cultural/global competence; acting as a responsible and contributing citizen and employee.
4. Be able to plan for and pursue education and training that is aligned to their personal strengths and professional goals.

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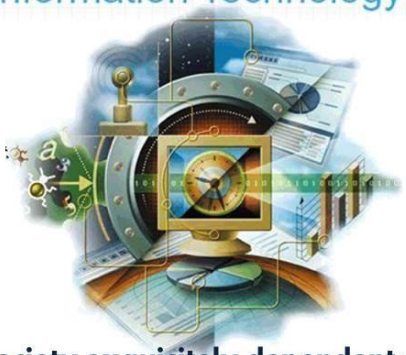
ITA EAST HIGH SCHOOL
Information Technology Academy



We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.

Carl Sagan

INFORMATION TECHNOLOGY – CLUSTER/INDUSTRY OUTLOOK

REGIONAL EMPLOYMENT DATA

Source: NYS Department of Labor, Bureau of Labor Market Information - Division of Research and Statistics; Significant Industries Report - Finger Lakes Region 2019

https://labor.ny.gov/stats/PDFs/Significant-Industries-Finger-Lakes.pdf

Eleven industries are designated as "significant" in the Finger Lakes. Employment increased in nine of these industries between 2013 and 2018. In addition, ten industries employed at least 10,000 people during 2018. Nine of these industries offered above average wages.

All significant industries shared one or more of the following characteristics: rapid growth (percentage basis); large growth (absolute basis); high wages (average annual wage above the regional average of $49,200 in 2018); or strong expected growth through 2026.

A broad set of industries were identified for this report. They cover six major industry groups: construction; manufacturing; **professional and business services**; educational services; health care; and social assistance.

Computer and Electronic Product Manufacturing Page 9
(NAICS Industry 334)

Ten Most Common Occupations
Industry Description: Industries in the Computer and Electronic Product Manufacturing subsector group establishments that manufacture computers, computer peripherals, communications equipment, and similar electronic products, and establishments that manufacture components for such products. The Computer and Electronic Product Manufacturing industries have been combined in the hierarchy of NAICS because of the economic significance they have attained. Their rapid growth suggests that they will become even more important to the economies of all three North American countries in the future, and in addition their manufacturing processes are fundamentally different from the manufacturing processes of other machinery and equipment.

Rank #2 15-1133 Software Developers, Systems Software % Share of Industry Workforce=6.8%, Projected Employment Change 2016-2026= 5.1%

Rank #7 15-1132 Software Developers, Applications, % Share of Industry Workforce= 3.3% Projected Employment Change 2016-2026= 26.1%

Professional, Scientific and Technical Services Page 10
(NAICS Industry 541)

Ten Most Common Occupations
Industry Description: Industries in the Professional, Scientific, and Technical Services subsector group establishments engaged in processes where human capital is the major input. These establishments make available the knowledge and skills of their employees, often on an assignment basis, where an individual or team is responsible for the delivery of services to the client. The individual industries of this subsector are defined on the basis of the particular expertise and training of the services provider.

Rank #3 15-1151 Computer User Support Specialists, % Share of Industry Workforce= 4.4%, Projected Employment Change 2016-2026=13.1%

Rank #8 15-1121 Computer Systems Analysts, % Share of Industry Workforce= 3.2%, Projected Employment Change 2016-2026=9.0%

STATE EMPLOYMENT DATA
Source: NYS Department of Labor, Employment Projections: Long-Term Occupational Employment Projections

https://statistics.labor.ny.gov/lsproj.shtm

Find the expected employment growth and annual openings for all published occupations in New York State and its 10 labor market regions. These 10-year forecasts, which are updated every other year, are intended to help individuals make informed education and career decisions

and assist educators and training providers in planning for future needs. Included with our long-term occupational projections are these important supplementary data series

Top Growth Occupations in IT: Information Securities; Projected Employment Change 2018-2028= 34.3%, Software Development; Projected Employment Change 2018-2028= *(Application-28.3% & System 20.1%)*

In Decline Occupations in IT: Computer Programmers Projected Employment Change 2018-2028= -.01%, Computer Network Architects Projected Employment Change 2018-2028= 6.5%

New York State Department of Labor

Long-Term Occupational Employment Projections, 2018-2028

New York State

Level	SOC Code[1]	Title	Employment		Change		Typical Education Needed for Entry[6]	Employment Prospects[8]	U.S Rate[9]
			2018	2028	Net	Percent			
1	**00-0000**	**Total, All Occupations**	**10,489,880.00**	**11,577,400.00**	**1,087,520.00**	**10%**			**5%**
3	15-1100	Computer Occupations	280,370	326,240	45,870	16.4%			12.2%
4	15-1121	Computer Systems Analysts	47,610	54,750	7,140	15.0%	Bachelor's degree	Very Favorable	8.8%
4	15-1122	Information Security Analysts	7,090	9,520	2,430	34.3%	Bachelor's degree	Very Favorable	31.6%
4	15-1131	Computer Programmers	18,290	18,280	-10	-0.1%	Bachelor's degree	Unfavorable	-7.2%
4	15-1132	Software Developers, Applications	57,010	73,130	16,120	28.3%	Bachelor's degree	Very Favorable	25.6%
4	15-1133	Software Developers, Systems Software	22,790	27,370	4,580	20.1%	Bachelor's degree	Very Favorable	10.1%
4	15-1134	Web Developers	13,420	15,160	1,740	13.0%	Associate's degree	Very Favorable	13.0%
4	15-1141	Database Administrators	7,570	8,540	970	12.8%	Bachelor's degree	Favorable	9.0%
4	15-1142	Network and Computer Systems Administrators	27,630	30,160	2,530	9.2%	Bachelor's degree	Favorable	4.7%
4	15-1143	Computer Network Architects	9,080	9,670	590	6.5%	Bachelor's degree	Favorable	5.3%
4	15-1151	Computer User Support Specialists	50,490	58,090	7,600	15.1%	Some college, no degree	Very Favorable	10.6%
4	15-1152	Computer Network Support Specialists	13,450	14,820	1,370	10.2%	Associate's degree	Favorable	6.4%

[1]Occupational codes are based on the SOC 2010 coding structure. Detailed

[6] U.S. Department of Labor (USDOL), Bureau of Labor Statistics (BLS),

[8] Employment Prospects technical documentation is found at https://labor.ny.

[9] Comparative long-term (2018 - 2028) growth rates at the national level.

Notes: N/A indicates not available

Source: New York State Department of Labor, Division of Research & Statistics

CURRICULUM

The curriculum for the program has been developed and vetted by industry partners and is CTE endorsed through 2021. Monroe Community College serves as our Post-Secondary college partner; however, we also look to Alfred State and Rochester Institute of Technology's IT programs as well.

PATHWAY SEQUENCE

<table>
<tr><th>GRADE</th><th colspan="2">COURSES</th></tr>
<tr><td>9</td><td>INTRO TO INFORMATION TECHNOLOGY
1-Credit</td><td>Computer Essentials
Gen Elective
1 - Credit</td></tr>
<tr><td>10</td><td>Passed Intro Information Technology
COMPUTER HARDWARE & SYSTEM SUPPORT
1 - Credit</td><td>Introduction to Information Technology
1-Credit</td></tr>
<tr><td rowspan="4">11
or
12</td><td>Passed Computer HW & System Support
COMPUTER PROGRAMMING
1 - Credit</td><td>Passed Intro to Information Technology
Computer Hardware
1 - Credit</td></tr>
<tr><td rowspan="2">Passed Computer Programming
Or Computer HW System Support
ADVANCED COMPUTERS & DIGITAL MEDIA*
1 - Credit</td><td>Passed Computer Hardware or Computer Essentials
Computer Programming
1 - Credit</td></tr>
<tr><td>OR
Advanced Computers
1 - Credit</td></tr>
<tr><td colspan="2">Required for CTE Endorsement
Careers & Financial Management- BUSINESS
1 - Credit</td></tr>
</table>

*This is a 4 Credit - Dual Enrollment, Full-Year Course

✍**PATHWAY EXAMS = 4 + 1 (5th Regent)**
NOCTI 4122 COMPUTER TECHNOLOGY EXAM (CTE ENDORSEMENT)
OPPORTUNITY FOR AN ADVANCED REGENTS **REPLACE LOTE WITH THIS 5 CREDIT PATHWAY SEQUENCE** **NOTE: MUST have completed ALL 5 of the above credits to be eligible for Advanced Regents**

CURRENT TECHNOLOGY RESOURCES

Raspberry Pi's - Official Kits	**Description**
	**We have 15 Kits that include:** • Raspberry Pi 4 Model B (2GB, 4GB or 8GB version) • Raspberry Pi Keyboard & Mouse • 2 × micro HDMI to Standard HDMI (A/M) 1m Cables • Raspberry Pi 15.3W USB-C Power Supply • Raspberry Pi 4 Case • Official Raspberry Pi Beginner's Guide (English language) • 16GB NOOBS with Raspberry Pi OS microSD card
Raspberry Pi's – 7" Touch Screens	**Description**
	**We have 15 of the Touch Screens –** Use for Mobile Device curriculum
Lego Mindstorm EV3 Kits	**Description**
	**We have 15 of these kits** - We also have some of the add-ons for animals, the environment and astronomy

Dash and Dots – Classroom Packs	Description
	**We have six of these kits they include:** • 6 Dash robots • 6 Dot robots • 6 Launchers • 6 Building Brick Connector Sets (4 connectors per set) • 6 Accessory Packs • 6 Challenge Card Box Sets • 1 Learn to Code Curriculum Guide
Coming Next Fall…….	
LocoDrone Codable Aerial Robots	**Description**
	**We have eight of these drones that can be programmed using Python or Java** - Sensor Data Analysis and Decision-Making - Data Visualization - Aerodynamics - Aeronautics - Control Theory - Sensory Aerial Robotics Design
LocoDrone X-Advanced drone kit (with Raspi) FAA Part 107 Knowledge Test Prep	
No image available	
PC Build Kits	**Description**
	**15 – PC Build Kits** - Includes: - Standard Build Parts Plus: ○ G-Force Video Cards ○ Wi-Fi Networking Cards

Networking Technician Starter Kits	Description
	8 Kits that include Includes: - RJ11/12/45 modular plug crimper with cutter and stripper - UTP/STP cable stripper - 4 1/2" diagonal cutting plier - LAN cable tester - Antistatic Straps