Information Technology

Program of Study

BEN BARBER
INNOVATION ACADEMY

INFORMATION TECHNOLOGY

Endorsement: Business & Industry

Principles of Information Technology
1850CT
(9-12)

Digital Media
1280CT
(9-12)

Computer Maintenance
1829CA/CB
Prerequisite: Geometry or concurrent enrollment
(9-12)

CompTIA A+ Certification *Possible*

Computer Programming I
1260CT
Prerequisite: Principles of IT AND Algebra I AND Geometry or concurrent enrollment
(9-12)

Pre AP Computer Programming I
1263CT
Prerequisite: Principles of IT AND Algebra I AND Geometry or concurrent enrollment
(9-12)
Weighted Credit

Web Technologies
1283CT
Prerequisite: Digital Media
(9-12)

Networking
1831CA/CB
Prerequisite: Computer Maintenance
(10-12)

CompTIA Network Certification *Possible*

Computer Programming II
1265CT
Prerequisite: Computer Programming I or PreAP Computer Programming I
(10-12)
Weighted Credit

AP Computer Science Principles
1266CT
Prerequisite: Computer Programming I or PreAP Computer Programming I
(10-12)
Weighted Credit

Practicum in Information Technology
1851CA/CB
Prerequisite: Computer Programming II OR AP Computer Science Principles OR Web Technologies OR Networking
(11-12)

Oracle Certification *Possible*

Certification Requirement
The district will pay 100% of the cost of the certification test if students can show mastery by:
Passing a certification practice test
Maintaining an 80+ overall course average at the time of the certification test
If students don't meet the requirements above, they must pay 100% of the cost of the certification test

★ Certificate of Excellence can be earned for this course.

LEGEND					
Fill Color	Length	Credit	Fill Color	Length	Credit
	18 weeks	1		HC - 18 weeks	0.5
	36 weeks	2-3		HC - 36 weeks	1
	College Course			Advanced Course	

To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

Information Technology

Recommended Career Pathways

- Computer Programmer
- Software Engineer

Principles of Information Technology

Computer Programming I

PreAP Computer Programming I

Computer Programming II

AP Computer Science Principles

Met Endorsement Requirements

Practicum in Information Technology

Web Developer

Digital Media

Web Technologies

Practicum in Information Technology

Met Endorsement Requirements

- Network Administrator
- Computer Engineer

Computer Maintenance

Networking

Met Endorsement Requirements

Practicum in Information Technology

To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

POS: Information Technology | Endorsement: Business & Industry

Principles of Information Technology

Prerequisite: None
Course: 1850CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

Students will learn about a variety of IT concepts including computer software, computer hardware, careers in IT, and how to prepare and give presentations. Students will practice beginning computer programming skills with a visual programming environment called "Scratch".

Student Activities

Students will create and design programs, games, and promotional ads. They will create documents such as resumes, PowerPoint type presentations, business cards and spreadsheets. Students will learn about computer hardware and operating systems and prepare presentations about careers in IT.

What's next?

If you want to be a **Software Engineer, Game Developer, Computer Programmer, Web Developer, Mobile App Designer or IT Administrator** then you should consider taking these courses…

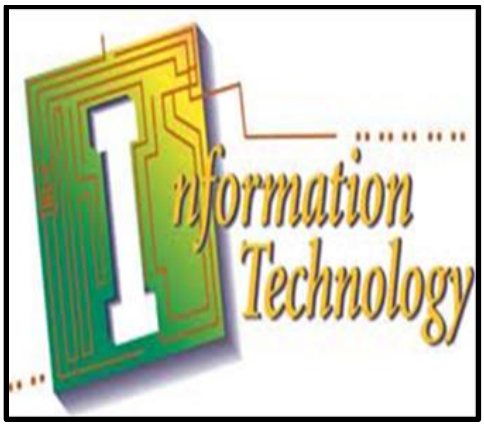
- Computer Programming I/Pre-AP Computer Programming I
- Computer Programming II
- AP Computer Science Principles
- Practicum in Information Technology
- Video Game Design I, II, III
- Web Technologies
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

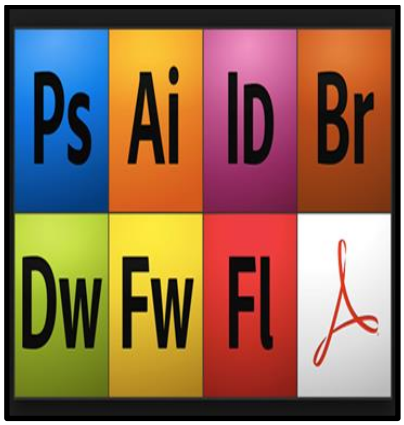
Organizations/After School/Competitions

- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

Digital Media





Prerequisite: None
Course: 1280CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

Digital Media is a course that helps students interested in information technology develop advanced skills in designing, importing and manipulating text, graphics, audio and video used in presentations, multimedia productions and desktop publication for high school students. Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Student Activities

Are you ready to be challenged, to test your creativity, to do things you only imagined? In Digital Media, students will experience a variety of creative projects using audio and video tools and Adobe Creative Suite software including Photoshop, InDesign, Illustrator, Fireworks, Acrobat Professional and Dreamweaver. The course culminates in an extensive portfolio that will showcase students' digital media creations.

What's next?

If you want to be a **Software Engineer**, **Game Developer**, **Computer Programmer**, **Web Developer**, **Mobile App Developer** then you should consider taking these courses…

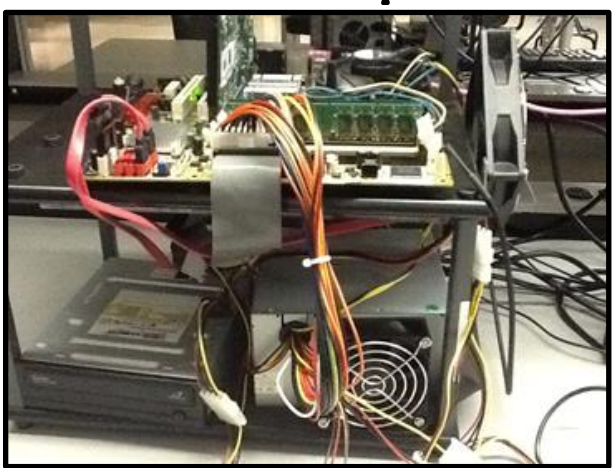
- Web Technologies
- Computer Programming I/Pre-AP Computer Programming I
- Computer Programming II
- AP Computer Science Principles
- Practicum in Information Technology
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Organizations/After School/Competitions

- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

Computer Maintenance



Prerequisite: Geometry or concurrent enrollment

Course: 1829CA/CB Credits: 2 Length: 36 weeks Placement: 9-12

Course Description

Computers (including smart phones, tablets and other mobile devices) are increasingly being used for communications, operations, security and leisure. Computer Maintenance covers the selection of hardware, troubleshooting both hardware and operating systems, and basic networking. Visit Achieve Texas for more information on careers at: http://www.achievetexas.org/Information.htm

Student Activities

- Students will build and troubleshoot system hardware and operating systems.
- Students participate in community service projects such as providing a video game room at a Christmas party for underprivileged children.
- Students have the opportunity to participate in SkillsUSA.

Additional Considerations

Students must have successfully completed Geometry without modification. Students need fine motor skills and mobility.

Certifications

CompTIA A+ Certification Possible

Student Cost: $205

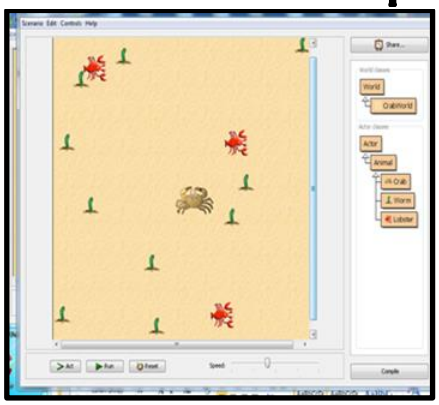
Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

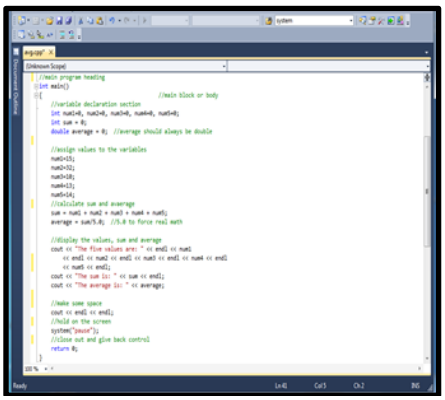
SkillsUSA Champions at Work

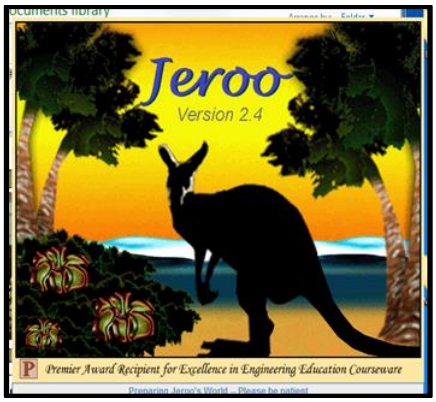
SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce with over 300,000 members

POS: Information Technology | Endorsement: Business & Industry

Computer Programming I







Prerequisite: Principles of IT AND Geometry or concurrent enrollment

Course: 1260CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

In this hands-on course environment, students will learn the fundamentals of computer science and computer programming utilizing a high-level language such as C++ or Java. Students will learn programming methodologies, algorithm development, problem solving skills, and the ethical and social considerations for the appropriate use of computer software and hardware throughout the course.

Student Activities

Students will use the computer to create, test, and evaluate programs and games. Students will do mostly hands-on activities to learn and use the design process, analyze problems and create programming algorithms, and make unique projects in a variety of graphical environments.

What's next?

If you want to learn more about programming and careers in computer science then you should consider taking these courses:

- Computer Programming II
- AP Computer Science Principles
- Practicum in Information Technology
- Web Technologies
- Video Game Design I, II, III
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Additional Considerations

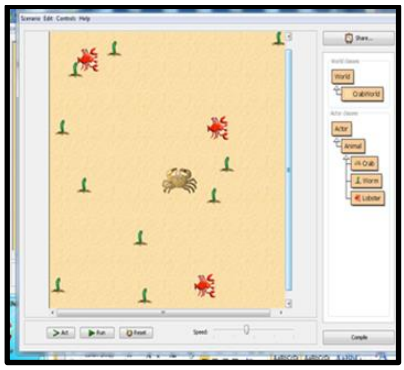
Students must have successfully completed Algebra I and Geometry without modification.

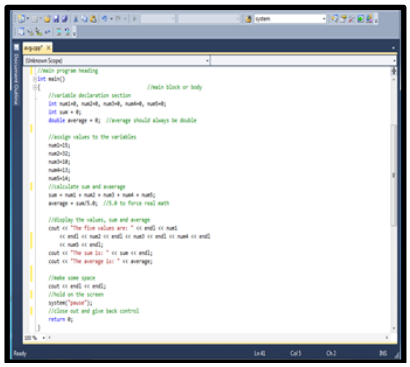
Organizations/After School/Competitions

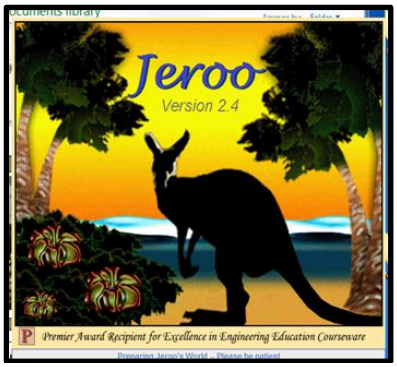
- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

Pre-Advanced Computer Programming I







Prerequisite: Principles of IT AND Geometry or concurrent enrollment

Course: 1263CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

In this hands-on course environment, students will learn the fundamentals of computer science utilizing a high-level language such as C++ or Java. Students will learn programming methodologies, algorithm development, problem solving skills, and the ethical and social considerations for the appropriate use of computer software and hardware throughout the course. This is a fast-paced honors course where students will design and implement projects individually and with peer teams.

Student Activities

Students will use the computer to create, test and evaluate programs and games. Students will do mostly hands-on activities to learn and use the design process, analyze problems and create programming algorithms, and make unique projects in a variety of graphical environments.

What's next?

If you want to be a **Software Engineer**, **Game Developer**, **Computer Programmer**, **Web Developer, Mobile App Develop** then you should consider taking these courses…

- Computer Programming II
- AP Computer Science Principles
- Practicum in Information Technology
- Video Game Design I, II, III
- Web Technologies
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Organizations/After School/Competitions

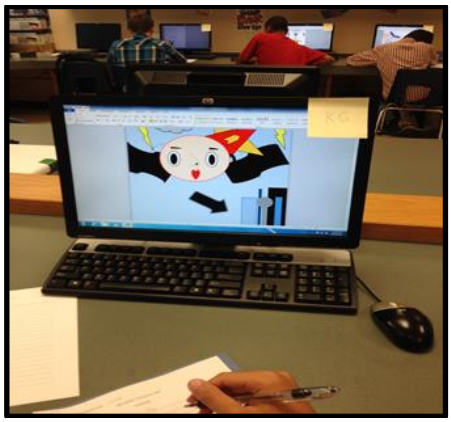
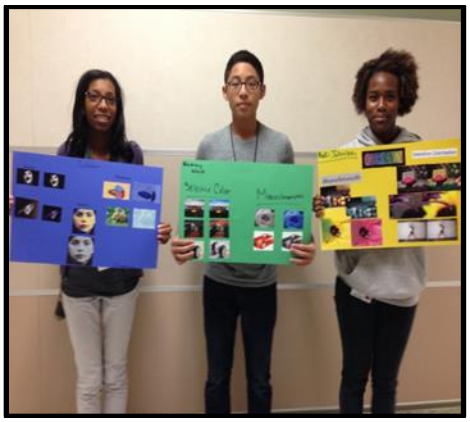
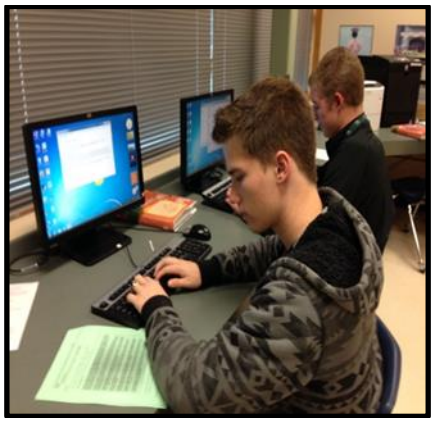
- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- First FTC Robotics

Additional Considerations

Students must have successfully completed Algebra I and Geometry without modification.

POS: Information Technology | Endorsement: Business & Industry

Web Technologies

Prerequisite: Digital Media

Course: 1283CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

Appropriate graphical and website design, layout and analysis skills will be emphasized throughout the course as students develop simple web pages using HTML, CSS, Javascript, PHP and Dreamweaver. Students will create, manipulate and animate images and objects to enhance websites they develop.

Student Activities

Gallery walks of student work. Students will edit photos with the free application of GIMP. Student will create simple web pages using HTML, CSS, Javascript, PHP and Dreamweaver.

What's next?

If you want to be a **Software Engineer, Game Developer, Computer Programmer, Web Developer, Mobile App Developer** then you should consider taking these courses…

- Computer Programming II
- AP Computer Science Principles
- Practicum in Information Technology
- Video Game Design I, II, III
- Web Technologies
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Organizations/After School/Competitions

Computer Science Students Association

- Computer Science Students Association
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

Networking

Prerequisite: Computer Maintenance

Course: 1831CA/CB Credits: 2 Length: 36 weeks Placement: 10-12

Course Description

The world is more digitally connected every day. Computers, smartphones, tablets, GPS systems and satellite communications systems all use telecommunications networks. Smart houses and remote access cars are also on the net. This class will cover designing subnets, maintaining security and firewalls and other network basics. Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Student Activities

- Students will design, connect and troubleshoot networks and servers.
- Students participate in community service projects such as providing a video game room at a Christmas party for underprivileged children.
- Students have the opportunity to compete in SkillsUSA.

What's next?

Consider these courses to further enhance your skills:

- Computer Maintenance
- Robotics I
- PLTW Engineering
- Video Game Design I, II, III
- Web Technologies
- Visit Achieve Texas for more information on careers: http://www.achievetexas.org/Information.htm

Competitions

SkillsUSA Champions at Work

Certifications

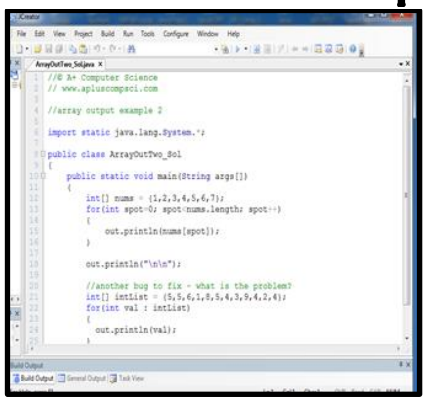
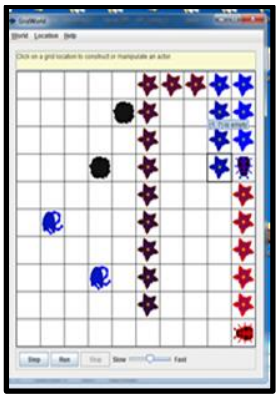
CompTIA Network Certification Possible

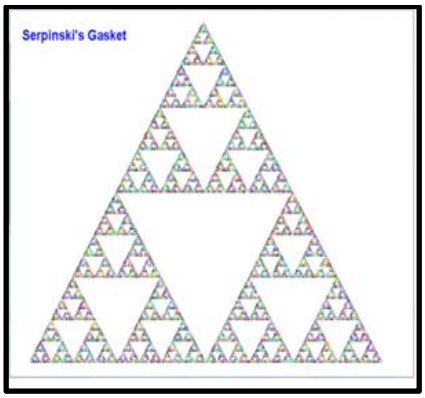
Student Cost: $319

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

POS: Information Technology | Endorsement: Business & Industry

Computer Programming II



Prerequisite: Computer Programming I or Pre-Advanced Computer Programming I

Course: 1265CT Credits: 1 Length: 18 weeks Placement: 10-12

Course Description

Students will use the JAVA language to create programs for games and classic algorithms while learning intermediate, college-level object-oriented programming concepts. Students will have the opportunity to participate in a variety of extra-curricular and contest activities.

Students can potentially earn college credit by taking the AP Computer Science A Exam.

Student Activities

Students will learn to develop programs in the JAVA programming language and will complete a variety of labs and projects to showcase the programming skills and algorithms learned. Students will have the opportunity to work and compete in teams in a variety of settings and students will be prepared to take the AP CS A exam and receive college credit for the course in the spring.

Certificate of Excellence

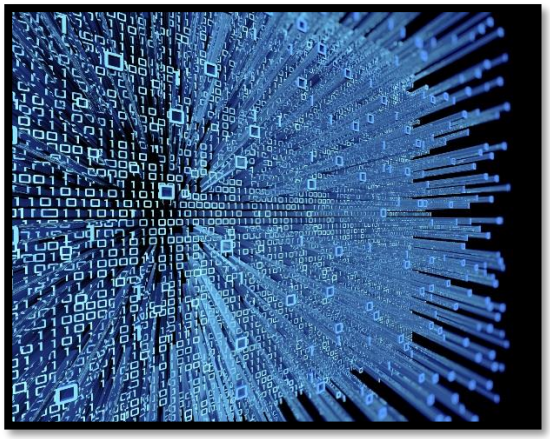
Students can earn a Certificate of Excellence by achieving a specific list of real world skills related to this course. For the list of skills, please visit goo.gl/9VM3a9

Organizations/After School/Competitions

- Computer Science Students Associations
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

AP Computer Science Principles



Prerequisite: Computer Programming I OR PreAP Computer Programming I
Course: 1266CT Credits: 1 Length: 18 weeks Placement: 10-12

Course Description

This course will introduce students to the foundational concepts of computer science where students will also get an opportunity to explore how computing and technology can impact the world. The course focuses on creatively solving problems and real-world applications.

Student Activities

Students will work with data, programs and gain a better understanding of the internet and cybersecurity. Students will analyze problems and artifacts, create computational artifacts and communicate and collaborate as part of a team.

What's next?

Consider these courses to further enhance your skills:

- Video Game Design I, II, III
- Web Technologies
- Computer Maintenance
- Robotics
- PLTW Engineering
- Visit Achieve Texas for more information on careers http://www.achievetexas.org/Information.htm

Organizations/After School/Competitions

- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

POS: Information Technology | Endorsement: Business & Industry

Practicum in Information Technology

Prerequisite: Computer Programming II OR AP Computer Science Principles OR Web Technologies OR Networking

Course: 1851CA/1851CB Credits: 2 Length: 36 weeks Placement: 11-12

Course Description

This personalized, independent study course will allow students interested in pursuing a career in information technology opportunities for advanced learning beyond the classroom environment. Students will engage in a variety of industry-relevant experiences such as competition and or product innovation, classroom teaching opportunities, and advanced topics research and development.

Student Activities

Students will propose, design, create, evaluate, and present a variety of advanced projects involving technology and IT skills based on personal interest. Students may have the opportunity to participate in skills contests, work on projects for outside clients, and/or have an internship. Students will prepare an electronic portfolio and resume to showcase their projects.

Certifications

Oracle Certification Possible

Student Cost: $125

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Additional Consideration

If a student does not have transportation, opportunities will be limited.

Organizations/After School/Competitions

- Computer Science Students Association
- Game Design Club
- Business Professionals of America
- UIL Computer Science
- FIRST FTC Robotics

Information Technology Certifications

Name	Course	Provider	Cost
CompTIA A+	Computer Maintenance	CompTIA	Student Pays: $205
Candidates are better prepared to troubleshoot and problem solve. Technicians understand a wide variety of issues ranging from networking and operating systems to mobile devices and security. A+ supports the ability to connect users to the data they need to do their jobs regardless of the devices being used. https://certification.comptia.org/home			
CompTIA Network	Networking	CompTIA	Student Pays: $319
Students will know how to design and implement functional networks, configure, manage, and maintain essential network devices. They will use devices such as switches and routers to segment network traffic and create resilient networks and identify benefits and drawbacks of existing network configurations. https://certification.comptia.org/home			
Oracle	Practicum in Information Technology	Oracle University	Student Pays: $125
An Oracle Certification helps build a sense of trust with current and future employers that you can perform the job. Global companies are looking to hire experts they can trust. • 65% of respondents in a recent Pearson VUE Value of IT Survey reported receiving positive impact on their professional image and reputation • 75% of certification holders surveyed said they've experienced greater demand for their skills since getting certified. • The Oracle Certification badge gets up to 6x more views on your LinkedIn Profile which could lead to promising job opportunities. https://education.oracle.com/certification			