College of
Computing Sciences

DEPARTMENT OF
Computer Science

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REAL WORLD CONNECTIONS

GenCyber ™

Cybersecurity

Real World Connections

Summer Boot Camp at NJIT

Connecting Learning to Life

Summer 2016

The Program

In Summer 2016, NJIT's Computer Science department/ RWC Program will offer its first Cybersecurity Real World Connections Summer Camp at NJIT (Cyber-RWC) that will provide more than 40 middle & high school students across New Jersey from access to an intensive multidisciplinary Cybersecurity learning experience with multi-level/ hands-on training workshops and four exciting real world project tracks using our innovative RWC learning model.

RWC learning model is a different approach to teaching and learning as it allows students to re-invent their education and themselves in their own way while providing them with coaching, mentorship and real world opportunities. The main emphasis in RWC is creating highly motivational learning environments in STEM that makes learning relevant, challenging, exciting, and empowered by learning-by-doing, authentic experiences, students' ownership and social integration.

The program will utilize expert coaching, multi-tier mentorship and project-based learning to teach the students all cybersecurity essentials. As the students master such skills, they will form their own enterprise to build a Cybersecurity awareness campaign to inspire peers across the state by means of developing a website, creating a smart phone App, building a simulation game and making an awareness video. Consequently, they will elect their CEO and executive board of four project managers for four real world projects that aim at promoting cybersecurity awareness.

The program targets students entering grades 8-12 who are interested in cybersecurity. It is open to all students in New Jersey as it aims at serving a diverse population in terms of ethnicity, race, gender, and socio-economic status.

Facts about RWC

- In summer 2007, RWC students presented their real world projects at News12 New Jersey TV and were interviewed by Brian Jenks for more than 20 minutes; in 2012 RWC students presented their innovations at the Liberty Science Center.

- In Fall 2007, the founder of RWC and Capstone development won a national award from Carnegie Foundation with a permanent congressional record for innovation in education and NJIT's-wide excellence in service award.

- In summer 2008, RWC students presented their Global Microscope project to NASA headquarters in Washington DC and received an appreciation letter from NASA executive director of education;

- In summer 2008 & 2009, RWC winners received year-long mentorships from top executives at Saint Barnabas Health Care System; in summer 2013 RWC students ran the entire program by themselves as teachers and managers.

- RWC partnered with many departments at NJIT from computing sciences, to school of architecture.

- RWC program was featured frequently at the Star-Ledger, Daily Record, Asbury Park Press and NJN TV. The program was featured three years in a row at NJIT's president annual report.

- RWC partnered with Johnson & Johnson for more than seven years and this partnership only continues to grow.

- RWC partnered with the Enterprise Development Center at NJIT, Saint Barnabas Medical Center, several educational, humanitarian and non-profit organizations.

- All RWC showcases were attended by NJIT's senior leadership with big attendance of major corporations and university faculty and students.

Each day of the program the students will have two types of learning experiences:

Cybersecurity hands-on training & Cybersecurity project-based learning.

In Cybersecurity hands-on training, students will be exposed to the body of knowledge of Cybersecurity in a fun and exciting fashion. We use real world projects, games, challenges, interactive methods, movies and offer numerous workshops taught by subject matter experts from university and industry alike.

- RWC offered satellite locations in Newark, Mount Olive and Freehold and partnered with Newark Public Schools, Orange school district, Kearny High School and Union City High School.

- Selected by Newark Mayor's office and NJIT President to offer the first coding academy (Mayor Baraka Coding Institute) of its kind to Newark students.

- Selected by Panasonic north America for two years 2015 & 2016 in a row to offer a STEM interactive day for the children of Panasonic executives, managers and employees.

- Partnered with the Surgeon in Chief in Saint Barnabas Medical Center to offer a multiyear mini-medical school at Saint Barnabas Hospital for high school students.

- Selected by Orange Public Schools to offer after school, Saturday and Summer STEM programs for seven years in a row for hundreds of middle and high school students
.
- Received numerous funding awards from foundations, school districts, industry and community for more than 13 years.

- Established successful satellite locations in Colombia, South America to extend the

same STEM projects and educational opportunities offered in the United Stated to students in underserved communities at no cost.

- Partnered with the Police Department at NJIT to offer unique project experience in solving crimes using STEM

Working with industry leaders, subject matter experts and law endorsement agencies, this is some of what you will learn in our Cybersecurity summer camp:

- **How to build a computer from scratch**
- **How to build a secure network for home or office**
- **What hackers do to attack computers and networks?**
- **Protecting computers from malware, phishing and attacks**
- **Protecting computers from hacking passwords and emails**
- **Computer forensics and digital crime**
- **How to build a secure website**
- **How to build a secure smart phone App**
- **How to create a video game and use it for Cybersecurity**
- **How to create a CSI movie and use it for Cybersecurity**
- **Database and wireless security**
- **Cryptography**
- **Career paths in Cybersecurity**

RWC features critical ingredients of the 21st century classes

Sense of Ownership
Students select their projects, co-design the course, run class as a company, elect their CEO's, vote for activities and major decisions and get rewarded for constructive criticism.

Partnership
Students bring their education into real world environments as partners and not as employees.

Real Experience
Students join carefully designed real world experiences days at industry sites.

Social Intelligence
Students help each other within the team & between teams, teach the class, advise & mentor peers, sit in a u-shape style and enjoy social activities inside and outside the classroom.

RWC Objectives

Knowledge Enrichment
Enriching student's knowledge and skills in a wide spectrum of STEM topics using real world scenarios and role model mentorship.

Facilitating Creativity
Encouraging pro-active approaches and innovative thinking, as students become major players in significant real world projects.

Personality Development
Building professionalism, leadership, social, communication and presentation skills.

Boasting Motivation
Creating an exciting learning environment where education is relevant, and challenging with a strong sense of ownership.

Learning by Doing
Practicing existing high school curriculum in solving real world problems via project-based learning.

FAQs

Who is this program for?
While there is a great deal of programming and security aspects in the program, we have created this experience in a multidisciplinary fashion that would blend and involve game development, art & graphic design, film making and business & marketing aspects as the students will build a small company that would design an awareness campaign for peers across the state of NJ. This means students interested in arts & graphic design, business and marketing as well as multimedia & film making will also find a place in this program not just programmers and computer science students.

When and where does program meet?
The program will start with an orientation day on June 30th (4-9PM) for students and parents to introduce the program and prepare the students for the projects Open House. The open house will be on July 6th (11AM-5PM) to allow students to select and be selected across the multiple project tracks offered. The program will end with a public showcase on July 21st (5-9PM) where students will present their learning experiences and projects accomplishments to the world.
The program includes a four day/ three-night residential Cybersecurity leadership camp from July 13th to July 16th to enhance students experience with numerous experiences, activities, competitions and additional workshops.

Will transportation be provided?
Transportation will be supported to the best of our ability to field trips and off-campus events. However, it will not be provided for regular meetings and on-campus activities except for students in select school districts who usually offer free transportation to/ from NJIT.

How much it will cost me?
Cybersecurity real world connections program is a FREE, two -week full-day summer program, with FREE lunch included plus a four-day residential summer camp at NJIT (all meals included). There is NO COST to apply for the program or to attend.

Note: If a student has any food allergy or restriction, please notify the management staff. We will do our best to accommodate all dietary needs and food restrictions.

RWC Summer 2016 Schedule

NO	DAY/DATE	From	To	Activities	Location
1	Thursday, June 30, 2016	4PM	9PM	Students/ Parents Orientation	Campus Center Atrium
2	Wednesday, July 06, 2016	11AM	5PM	Cyber Security Projects/Tracks Open House	Campus Center Atrium
3	Thursday, July 07, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
4	Friday, July 08, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
5	Monday, July 11, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
6	Tuesday, July 12, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
7	Wednesday, July 13, 2016	10AM	10PM	Cyber Security Bootcamp (Day 1)	GITC 4415
8	Thursday, July 14, 2016	8AM	10PM	Cyber Security Bootcamp (Day 2)	GITC 4415
9	Friday, July 15, 2016	8AM	10PM	Cyber Security Bootcamp (Day 3)	GITC 4415
10	Saturday, July 16, 2016	8AM	8PM	Cyber Security Bootcamp (Day 4)	GITC 4415
11	Monday, July 18, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
12	Tuesday, July 19, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
13	Wednesday, July 20, 2016	11AM	5PM	Cyber Security Training & Project-Based Learning	GITC 4415
14	Thursday, July 21, 2016	5PM	10PM	Cyber Security Showcase	Campus Center Atrium

Please note: Participants must arrive at 11AM and be picked up by 5PM, each day.
-Dates highlighted in yellow are residential, overnight portion of the boot camp
-Dates highlighted in blue place in the evening.

Daily Agenda

Time	Program Activity
11:00 AM – 12:00 PM	Opening, business lunch with activities
12:00 pm – 2:00 PM	Cybersecurity Hands-on Training Workshops
2:00 PM – 4:00 PM	Cybersecurity Projects Tracks (Web, Apps, Game, CSI/Film)
4:00 PM – 5:00 PM	Closing Discussion, Reflection, Challenges, and Teams Presentations

Project Tracks

Android Apps Development and Security
- **Primary Focus:** Create apps for Android platform.
- **Expected Skill Set:** Interested in programming, willing to learn, self-motivated, creative.

Creating apps for Android platform using HTML and phone gap. The app will be focused on promoting the Cybersecurity essentials across students' peers in the state of NJ.

Web Development and Security
- **Primary Focus**: Developing a website for RWC's Cybersecurity campaign
- **Expected Skill Set**: Interest in web development; prior knowledge of basic coding is beneficial but not necessary

Creating a website using HTML, CSS, PHP and Java Script. The website will be focused on promoting the Cybersecurity essentials across students' peers in the state of NJ.

Game Development for Cybersecurity Simulation
- **Primary Focus:** Create a video game for RWC's Cybersecurity campaign
- **Expected Skill Set:** Interested in Video Games, willing to learn, self-motivated, creative.

Developing a creative video game using multiple software tools that can be used for simulating cybersecurity attacks and defenses with Unity and JavaScript, GUI and Transitions, Player Movement and Enemy Movement, Spawning and Collisions, Shooting and Scoring.

CSI: Solving Cyber Crimes with STEM
- **Primary focus:** Creating a film to showcase RWC's Cybersecurity campaign
- **Expected Skill Set:** Interested in film making and editing; Interest in criminal justice; practice with hands on filming with digital cameras is beneficial but not necessary.

Creating create a short video to promote Cybersecurity education across high school peers. The project is multidisciplinary in nature and includes both learning the fundamentals of Cybersecurity and multimedia and working with the police to solve real world crimes and get to see hands-on how investigators and police work in real world.

Ready to join the Cybersecurity Awareness Campaign team?
Apply at:
https://fs7.formsite.com/eljabiri2/Cybersecurity_Summer2016/index.html

Dr. Osama Eljabiri is the camp director

Questions regarding the application process or camp related issues may be sent to:

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The best way to predict your future is to invent it.

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