



2018 Statewide IT Challenge

SUMMARY EVENT DESCRIPTIONS

v1.7

EVENT SUMMARY

The **Ivy Tech 2018 Statewide IT Challenge** is an inter-campus competition that provides opportunities for students from all 19 campus around the State to compete for recognition and awards.

Eight competitive events are held on the Indianapolis campus of Ivy Tech in Building C4. Each event is two hours long, and has been designed and will be judged by faculty and staff from the IT Division of Ivy Tech. The competitions are described in this Competition Summaries document, and include:

- Network Infrastructure (NETI)
- IT Support (ITSP)
- Cyber Sec/Info Assur (CSIA)
- Server Administration (SVAD)
- Database Management (DBMS)
- Software Development (SDEV)
- Computer Science (CSCI)
- Visual Communications (VISC)

The competitions occur on either Thursday, April 5, or Friday, April 6, with an Award Ceremony wrapping up the second day's competitions in the late afternoon of Friday, April 6. A schedule is presented on the next page. Best performing students are awarded Gold, Silver, and Bronze medals for each event.

The **2018 Statewide IT Challenge** is occurring this year in concert with an **IT Job Fair** in the afternoon of Thursday, April 5, 2018, and a two-day **Cisco Academy 20th Anniversary Conference**, with planned workshops, breakout sessions, and other festivities.

EVENT SCHEDULE

	ROOM 118	ROOM 120	JUDGES ROOM	LOUNGE/DINING
THURSDAY, APRIL 5				
8:00 AM	COMPETITION ROOM SETUP			CONTINENTAL BREAKFAST
8:30 AM				
9:00 AM	REGISTRATION / SIGN-IN			
9:30 AM				LUNCH BUFFET
10:00 AM	CSCI Competition	SVAD Competition		
10:30 AM				
11:00 AM	COMPETITION ROOM SETUP		CSCI / SVAD JUDGING	STUDENT/GUEST LOUNGE SNACKS
11:30 AM				
12:00 PM	NETI Competition	SDEV Competition		
12:30 PM				
1:00 PM	COMPETITION ROOM SETUP		NETI /SDEV JUDGING	
1:30 PM				
2:00 PM				
2:30 PM				
3:00 PM				
3:30 PM				
4:00 PM				
4:30 PM				
5:00 PM				
5:30 PM				
6:00 PM				
FRIDAY, APRIL 6				
7:00 AM				
7:30 AM	COMPETITION ROOM SETUP	REGISTRATION/SIGN-IN		CONTINENTAL BREAKFAST
8:00 AM				
8:30 AM	DBMS Competition	ITSP Competition		
9:00 AM				LUNCH
9:30 AM	COMPETITION ROOM SETUP		DBMS / ITSP JUDGING	
10:00 AM				
10:30 AM				
11:00 AM	CSIA Competition	VISC Competition		STUDENT/GUEST LOUNGE SNACKS
11:30 AM	AWARD PREP		CSIA / VISC JUDGING	
12:00 PM				
12:30 PM	AWARD CEREMONY			
1:00 PM	DISMISSAL			
1:30 PM				
2:00 PM				
2:30 PM				
3:00 PM				
3:30 PM				
4:00 PM				
4:30 PM				
5:00 PM				
5:30 PM				
6:00 PM				

Computer Programming (CSCI) Competition

Designer: Kris Roberts, (Fort Wayne)

A competition for teams of 1, 2, or 3 undergraduate student programmers, challenged to solve specific programming problems and evaluated for applied logic, execution, and style. Up to 18 teams may register in advance to compete (one team per Ivy Tech campus.) Programming problem solutions may be solved using Java, C++, C#, Python or Visual Basic, at the discretion of each student team. Laptops/workstations are fully configured in advance of the competition. Time allotted to solve problems is 120 minutes minus the time used to explain the competition to competitors at the beginning of the event.

1. Student teams are explained the rules of the competition and the problem to be solved.
2. Problem is displayed on main screen. Judges explains any nuances.
3. Teams program the solution to the problem, saving to a provided thumb drive.
4. Teams are given 60, 30, 10, and 5 minute warnings.
5. Students turn completed solution on thumb drive into judges for evaluation.

Scoring - CSCI Competition

Points Possible	Evaluation Criteria
650	Does it perform the logic properly?
100	Does it compile/execute?
150	Does it validate data and have proper error handling?
50	Readability
50	Efficiency, Big O(n)
1,000	MAXIMUM POSSIBLE

?? Should students be permitted to bring and refer to a textbook??

Software Development (SDEV) Competition

Designers: Paul Addison (Lafayette), Skip Hahnert (Sellersburg)

Up to 18 teams of up to two students each (one team invited per campus) will be issued a challenge with instructions to design and develop a website using HTML5, CSS3 and JavaScript in the time allotted - a maximum of 110 minutes. The specifics of the web development challenge will be posed at the beginning of the event, but will consist of a home page and at least two other pages. A judge will explain the event to the teams, including a description of the “client company”, fact sheet, scoring criteria, how percent complete will be estimated, and provided graphical images that can be used on the website.

Teams will be provided with a laptop to perform their work and will save their work on a provided flash drive and turn in at the end of the event. The flash drive will contain the graphical images allowed to be used in designing the website, including the company’s logo.

The website is to be designed attractively and professionally, and will include user interaction and forms. Time remaining warnings will be provide at 60, 30 10 and 5 minutes remaining. At one minute remaining, teams will be instructed to save their work and close their files on the provided flash drive.

Students will be allowed to bring a MAXIMUM of three published and unedited reference materials on the subjects of HTML, CSS and JavaScript, which WILL BE REVIEWED by the event administrators prior to the start of the competition. Attempts to bring in your own notes or other materials of that nature will result in disqualification

Competition Steps:

1. Teams are given the specific business need to be reflected in the web site and the graphic images that can be used.
2. Teams develop a home page and two other subpages using HTML5, CSS3, and JavaScript within the allotted 110 minutes of development time.
3. Teams save their work on the provided flash drive and turn it in to be judged.

Scoring - SDEV Competition

Points Possible	Evaluation Criteria
200	Use of Graphics and Web Technology
300	Overall Design and Layout, Look and Feel
250	Correct and Complete Functionality
250	Programming Code Style and Structure
1,000	Maximum Possible
x %	Percent Complete
X,XXX	FINAL SCORE

COMPETITION SUMMARIES

Database Management (DBMS) Competition

Designers: Louis Vician (Columbus), Punam Mittal (Lafayette)

Sponsor/Host: Oracle Corp.

A maximum of 10 student teams of up to 3 members each (no more than 2 teams per campus) will be given a database with 10 tables on a flash drive. From these tables each team will be required to answer 10 query questions, one business briefing, and 4 graphs. Teams will be scored on obtaining the correct results and presenting the results to a fictitious board of directors. This will include providing accurate information gleaned from the data, graphs (in Excel or Open Office) developed by the team to explain their findings, and business recommendations by the team as a result of their analysis.

Competition Steps:

1. Judge distributes written description and Excel spreadsheet contained raw data to student teams.
2. Judge describes the business scenario and answers student questions.
3. Teams figure out the table relationships by creating an ERD on the provided flash drive. (Note: ERD should show at least cardinality means one to many, one to one, or many to many relationship)
4. Teams answer posed 10 questions on the data and create 4 graphics to explain their analysis and recommendations on the provided flash drive.
5. Teams submit business briefing document to the judges on the provided flash drive, included answers to questions and created graphics.

Scoring - DBMS Competition

Points Possible	Evaluation Criteria
250	Accuracy of the ERD
500	Answers to the 10 questions (50 points each)
200	4 graphics including analysis and recommendations (50 points each)
50	Business Briefing
1,000	MAXIMUM POSSIBLE

IT Support (ITSP) Competition

Designer: Chris Carroll (Bloomington)

Against the clock, up to 18 student teams of up to four people will be given the components and software to assemble a Microsoft machine, install VMware, and then install a Linux virtual machine on the same computer. Once physical assembly is completed, each team must i configure Windows and Linux operating systems as well as production and application software identified and provided by the judges. Teams will be competing against each other as well as the approximate two-hour time limit. Each team’s performance will be timed by a separate judge.

Competition Steps:

- Assembly - Teams assemble one computer from provided part
- OS Installation - Teams will install Windows 10 on the assembled physical machine; on a provided laptop, teams will install VMWare and install Red Hat Linux as a virtual machine.
- OS Configuration - Team will complete a provided list of configuration settings for the operating systems including but not limited to created administrative accounts, setting up network connectivity and joining an Active Directory Domain.
- Program Installation - Teams will map a network drives to a shared folder to locate and install antivirus software (AVG) and application software (Apache Open Office from OpenOffice.org)
- Security Implementation - Teams will configure the antivirus software and Operating Systems per provided security instructions on the Windows computer.

Scoring - ITSP Competition

Points Possible	Evaluation Criteria
500	Successful completion of Task 1
500	Successful completion of Task 2
500	Successful completion of Task 3
500	Successful completion of Task 4
500	Successful completion of Task 5
3,600	3,600 minus elapsed time in seconds
6,100	Maximum Raw Score
X 0.1639	Convert to 1,000 scale
1,000	MAXIMUM POSSIBLE

Network Infrastructure (NETI) Competition

Designer: Valerie Golay (South Bend), Matt Gull (Warsaw), Darryl Togashi (Ft. Wayne)

Sponsor/Host: Cisco

Up to 18 teams of up to 2 students each will attempt to complete ten (10) networking tasks based on the CISCO CCENT and CCNA Routing & Switching certifications (NETI 105, NETI 115, & NETI 205). There are six (6) Base Performance tasks scored on completion quality plus four (4) Advanced Configuration Tasks, scored on completion quality. The competition tasks are as follows:

BASE PERFORMANCE TASKS

1. Design and Document IPv4 & IPv6 Host Scheme
2. Basic Configuration w/Security Routers
3. Configure Static and Default Routing
4. Summarize
5. Basic Configuration w/Security - Switches
6. Build Networks including VLANs, Router on Stick

ADVANCED CONFIGURATION TASKS (in any order)

7. Configure DHCP & DNS
8. Configure ACL's for IPv4 and IPv6
9. Configure Spanning-Tree
10. Configure OSPF

Scoring - NETI Competition

Points Possible	Evaluation Criteria
600	6 Base Tasks
100	Advanced Confirmation Task 7
100	Advanced Confirmation Task 8
100	Advanced Confirmation Task 9
100	Advanced Confirmation Task 10
1,000	MAXIMUM POSSIBLE

Server Administration (SVAD) Competition

Designer: Bill Worden (Bloomington)

A maximum of 18 student teams of up to 2 members each will compete against the clock to build and establish Windows and/or Linux servers with a central authentication system such as Microsoft Active Directory Network or Linux equivalent including Kerberos with LDAP or FreeIPA to the specifications listed. Teams will perform Basic Tasks and Advanced Tasks, with points awarded for successful completion of each task and a time score for the completion of each task. A judge assigned to each team will time their performance. Blended teams from a variety of campuses will be encouraged.

Basic Tasks:

1. Configure Active Directory Services on a Server Core Installation
2. Install and configure DNS and DHCP services
3. Set up one printer service which prints a test page from the same system
4. Create standard staff user accounts, using a CSV file using the dsadd command or Powershell, configuring organizational units/groups
5. Create shared folders, setting permissions on folders, creating groups and applying assigned permissions

Advanced Tasks:

6. Restore data from backup
7. Install and configure a web service
8. Install and configure a SQL service
9. Establish permissions with Linux-based and Windows-based servers using single authentication. Print a specific document from one OS environment to the other OS print service located on a Group folder location from the restored backup (specified at the time of the event)

Scoring - SVAD Competition

Points Possible	Evaluation Criteria
500	Completion of Basic Tasks @ 100 points each
100	Completion of Advanced Task #6
200	Completion of Advanced Task #7
200	Completion of Advanced Task #8
300	Completion of Advanced Task #9
1,300	Maximum Completion Raw Score
X 0.769	Convert to 1,000 scale
X,XXX	MAXIMUM COMPLETION SCORE
+ up to 3,000 time pts	3,000 minus elapsed seconds = Max Time Score
X,XXX	TOTAL SCORE

Time Score is measured as elapsed time to complete all 9 tasks in seconds, subtracted from 6,000 seconds (100 minutes).

COMPETITION SUMMARIES

Cyber Security / Information Assurance (CSIA) Competition

Designer: Rami Salahieh (Valparaiso)

Sponsor/Host: EC-Council

Up to 18 teams of up to 2 students each will compete, based upon the NCL National Cyber League competition supported by CSSIA.org on the Cyber Skyline Platform, Students will be given open internet access during this competition in order to research the questions posed. The CSIA Competition will consist of the following 4 domains:

- I. **Open Source Intelligence (OSINT)** uses 2 Challenges 11 Questions: Help the police extract information using publicly available data and tools.
- II. **Cryptography** uses 4 Challenges 6 Questions: Information is key, but it's not going to be easy to get it. Decipher these hidden messages to learn what is really going on.
- III. **Log Analysis** 3 Challenges 25 Questions: Logs hold a ton of information. The hard part is using them to learn what happened. Analyze these logs to determine what the hackers have been up to.
- IV. **Network Traffic Analysis** 4 Challenges 26 Questions: Determine what happened and exactly when it happened by looking at network traffic captures.

COMPETITION STEPS:

1. Use online search engines to answer (OSINT) questions and analyze Email Header.
2. Use Basic Cryptography techniques substitution, transposition, and Conversions.
3. Use Advanced Cryptography techniques, and scripting to crack encrypted code.
4. Use Online SQL Database viewer to analyze Firefox history database.
5. Use Kali Linux CLI Commands to extract information from a log file.
6. Use Wireshark to analyze PCAP file and answer questions about FTP, DNS, and HTTP.
7. BONUS Task: Privilege Escalation Challenge. Use provided software of your own choosing to bypass the operating system login screen.

Scoring - CSIA Competition

Points Possible	Evaluation Criteria
110	Open Source Intelligence (OSINT) 2 Challenges 11 Questions (10 pts) per question
120	Cryptography 4 Challenges 6 Questions (20) pts per question
500	Log Analysis 3 Challenges 25 Questions (20) pts per question
260	Network Traffic Analysis 4 Challenges 26 Questions_(10 pts) per question
1,000	TOTAL
100	BONUS Task - Privilege Escalation Challenge
1,100	Maximum Possible

COMPETITION SUMMARIES

Visual Communication (VISC) Competition

Designer: Kyle Wiley (Kokomo), Erin Salyers (Fort Wayne)

Up to 18 student teams of up to three students each are challenged to create an advertising layout for a supplied common commercial product. Competitors will be required to take a photograph of the product and edit/manipulate it in Adobe Photoshop. They will also be required to create some form of visual identity (wordmark/logo) for the product using Adobe Illustrator. Finally, they will place both the Photoshop image(s) and the Illustrator art in Adobe InDesign and then composite the final magazine advertisement layout. Competitors will compete against the clock and complete all of these tasks in approximately 110 minutes.

Competition Steps

1. Examine the given product and research/brainstorm ideas for the magazine advertisement.
2. Complete ideation sketches for the visual identity and the finished layout.
3. Take photo(s) of the product and edit in Adobe Photoshop.
4. Develop a wordmark/logo for the product in Adobe Illustrator.
5. Composite all design elements (photo(s), identity, text, other) in Adobe InDesign

Specifications for the final document:

- Must be either full page (letter sized) or full spread (tabloid sized)
- Must include .psd of photo(s), .ai of logo/wordmark, and any typography done in .indd
- File must be correctly packaged using InDesign

Scoring - VCOM Competition

Points Possible	Evaluation Criteria
50	Concepts & Ideation
200	Technical Execution
300	Evidence of Design Theories
200	Effective use of Imagery
200	Effective use of Type
50	Creativity/WOW! Factor
1000	MAXIMUM POSSIBLE