



Nation Building Project

Science, Technology, Engineering and Mathematics for Jamaica (STEM)

Background



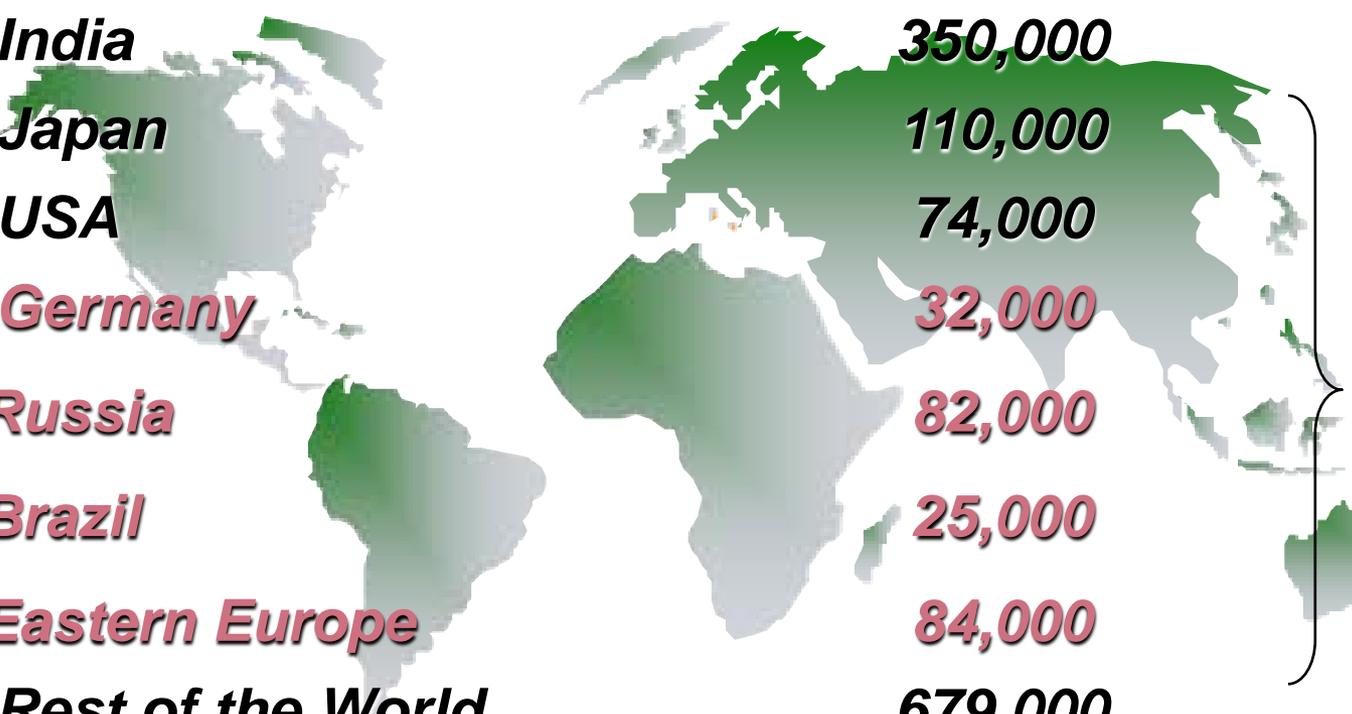
- This plan is focused on the [Vision 2030 Jamaica National Development Plan](#) and provides a roadmap to help Jamaica get to a developed nation. The model would hinge on the development of an island wide competence in engineering and manufacturing technologies to develop the next generation of Nation Builders trained in the use of advanced technology for social and economic development .



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Our joint challenge ...

Engineering Graduates Yearly vs. Global Need



| | | |
|----------------------------|----------------|---|
| ▶ China | 810,000 | Chinese Ministry of Education |
| ▶ India | 350,000 | |
| ▶ Japan | 110,000 | National Association of Software and Services Companies (NASSCOM) |
| ▶ USA | 74,000 | |
| ▶ Germany | 32,000 | American Society of Engineering Education (ASEE) |
| ▶ Russia | 82,000 | |
| ▶ Brazil | 25,000 | |
| ▶ Eastern Europe | 84,000 | |
| ▶ Rest of the World | 679,000 | |

Total ENG Graduates for 2008 → ~ 2.25M graduates

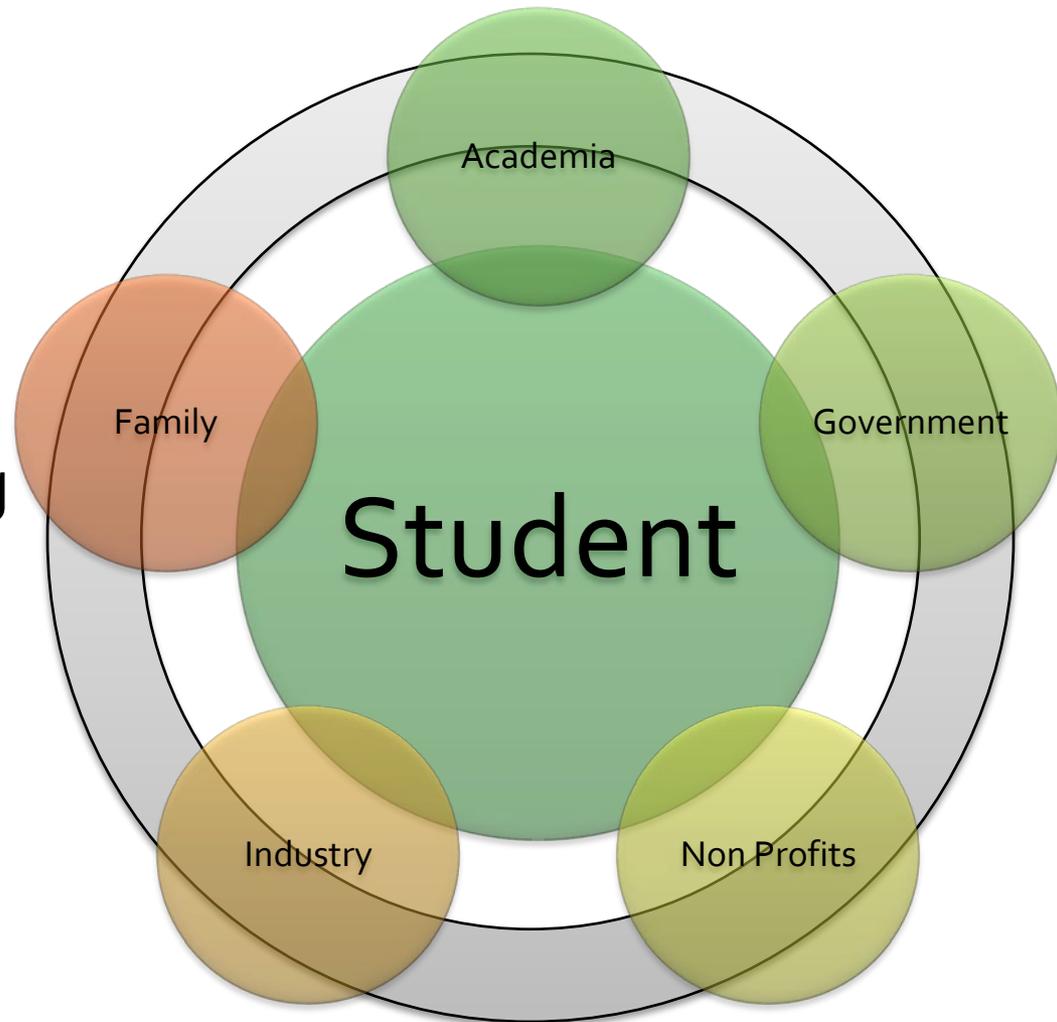
▶ **Worldwide Need '2008** ~ 3M graduates

**Our Vision for a
Developed
Jamaica focuses
on developing
Engineering and
Manufacturing
expertise for
National
Development**



Strategy centers on the youth

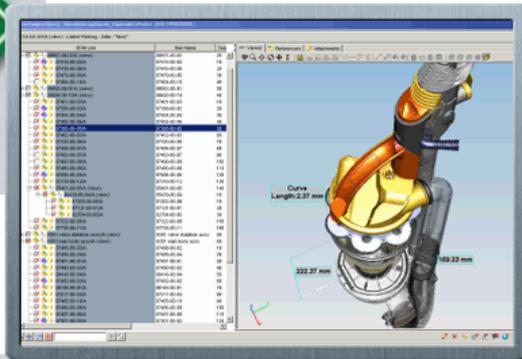
- Partner with **Academia, Industry, Government and Non-Profits** to assist with the deployment of the technology and training and development to encourage a focus on Science, Technology, Engineering and Mathematics (STEM) in Jamaica



To show them how they can learn and use sophisticated technology for National Development



Collaborative Product Development



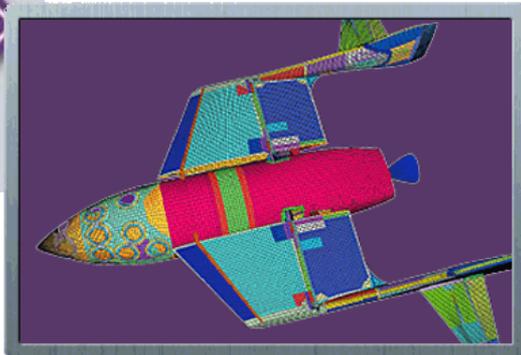
Advanced 3D CAD



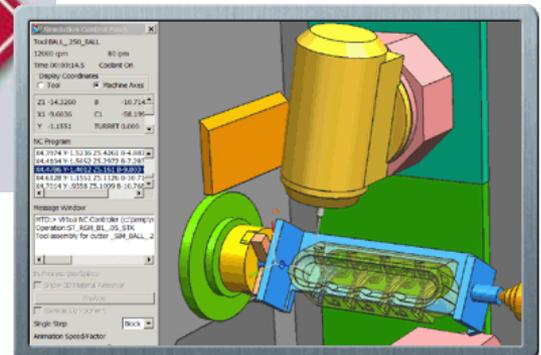
SIEMENS



Computer Aided Engineering and Analysis



Computer Aided Manufacturing



To Help Solve our Country's Toughest Problems

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CAD/CAM/CAE Digital Product Development Solutions

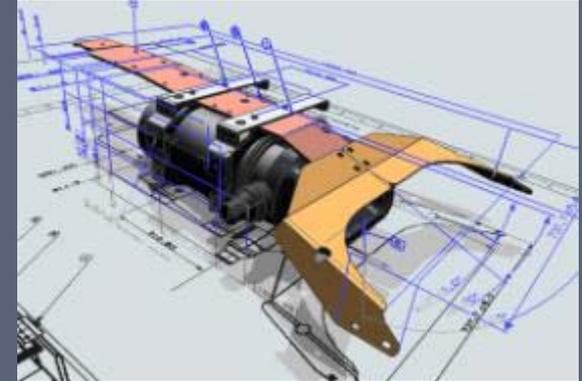
For the design and testing of ideas....



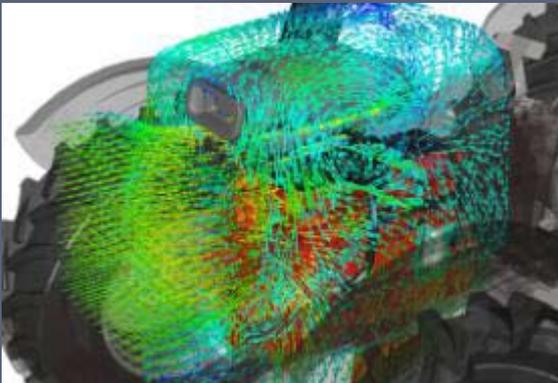
Styling



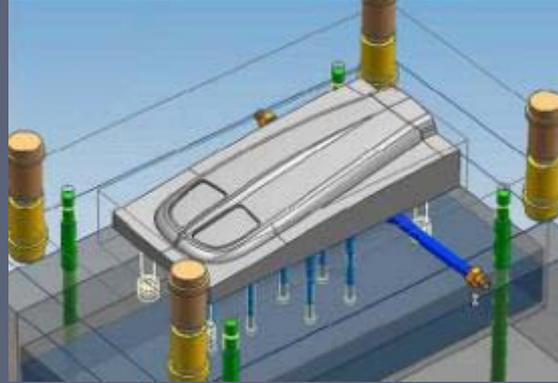
Design



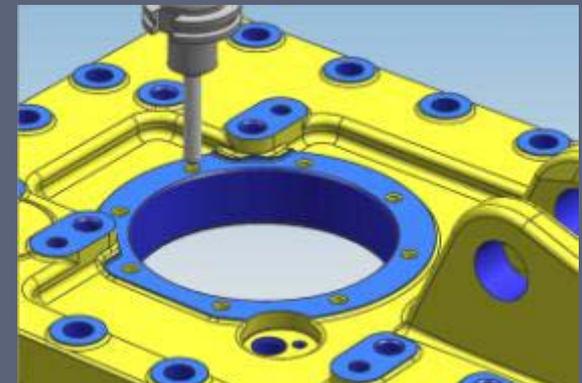
Documentation



Simulation



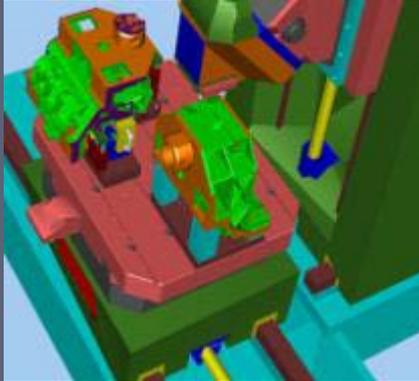
Tooling



Machining

Digital Manufacturing Solutions

For optimized manufacturing and assembly of innovations...



Part



Assembly



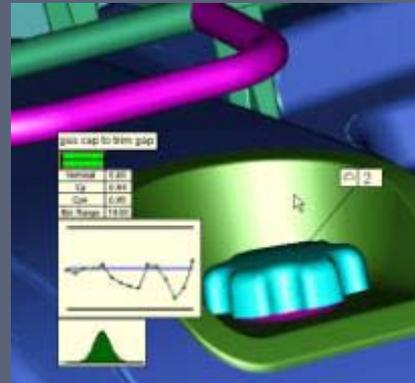
Resource



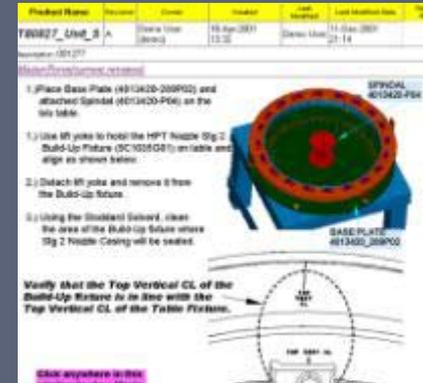
Plant



Human



Quality



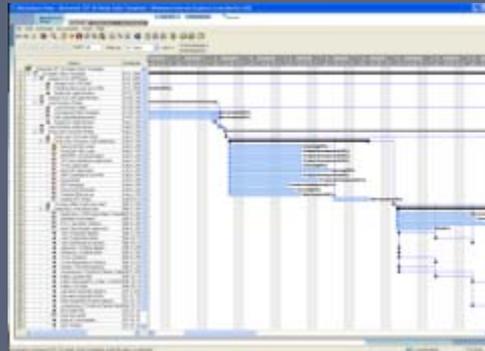
Production

Collaborative Product Development Solutions

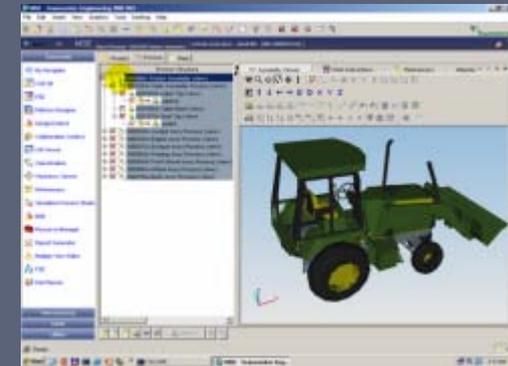
To learn how to develop innovations collaboratively....

| Name | Weight | Priority |
|------------------------------------|--------|----------|
| Customer expectations | 2 | 0002 |
| Users and intended use | 3 | 0003 |
| Users expect of the product | 4 | 0004 |
| User level of Expertise | 5 | 0005 |
| Environmental characteristics that | 6 | 0006 |
| Existing and planned interfaces | 7 | 0007 |
| The functions the system perform | 8 | 0008 |

Systems Engineering & Requirements Mgmt



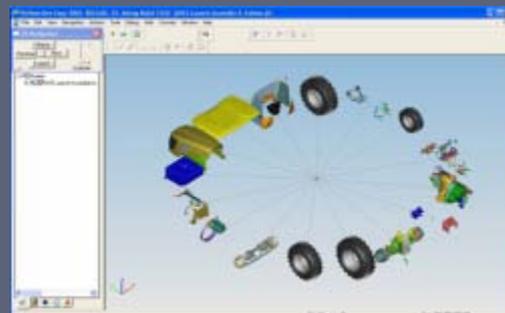
Portfolio, Program, & Project Mgmt



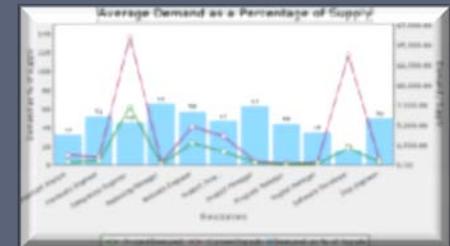
Engineering Process Mgmt



Manufacturing Process Mgmt



Supplier Relationship Mgmt



Reporting & Analytics

Many types of applications for the technology

Captures a variety of student interest....



Look at all the applications of the Computer Aided Design technology

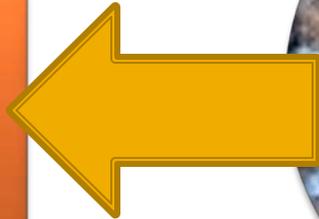


The alliance of great initiatives

Uniting with a purpose and a plan



**Nation Building
Innovation
Invention**



JCOBA-NY
Robotics
Competitions

JamRa
Technology
Engineering
Initiatives with
Tertiary and
Secondary
schools

Introducing our execution model....

Engineering a new Jamaica

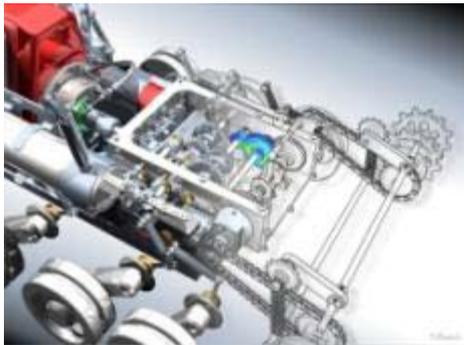
The Digital Yard™ Incubator Project

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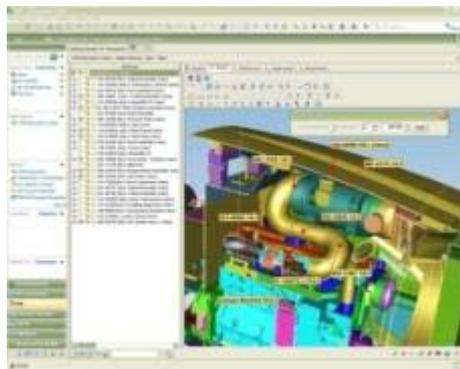
How are we going to execute the vision?

Creating expertise in CAD/CAM/CAE/DM/Collaboration

- Create an environment where children will be exposed to advanced technology in the classrooms and in afterschool programs
- Leveraging Siemens grant program to give Computer Aided Design, Computer Aided Manufacturing, Computer Aided Engineering software to schools as a start
- Collaboration with the Universities to form Innovation Hubs
- To give student in high school the ability to see a future of engineering, innovation and invention
- Encourage entrepreneurship and problem solving



Digital Product Development
NX CAD/CAM/CAE



Digital Lifecycle Management
Teamcenter



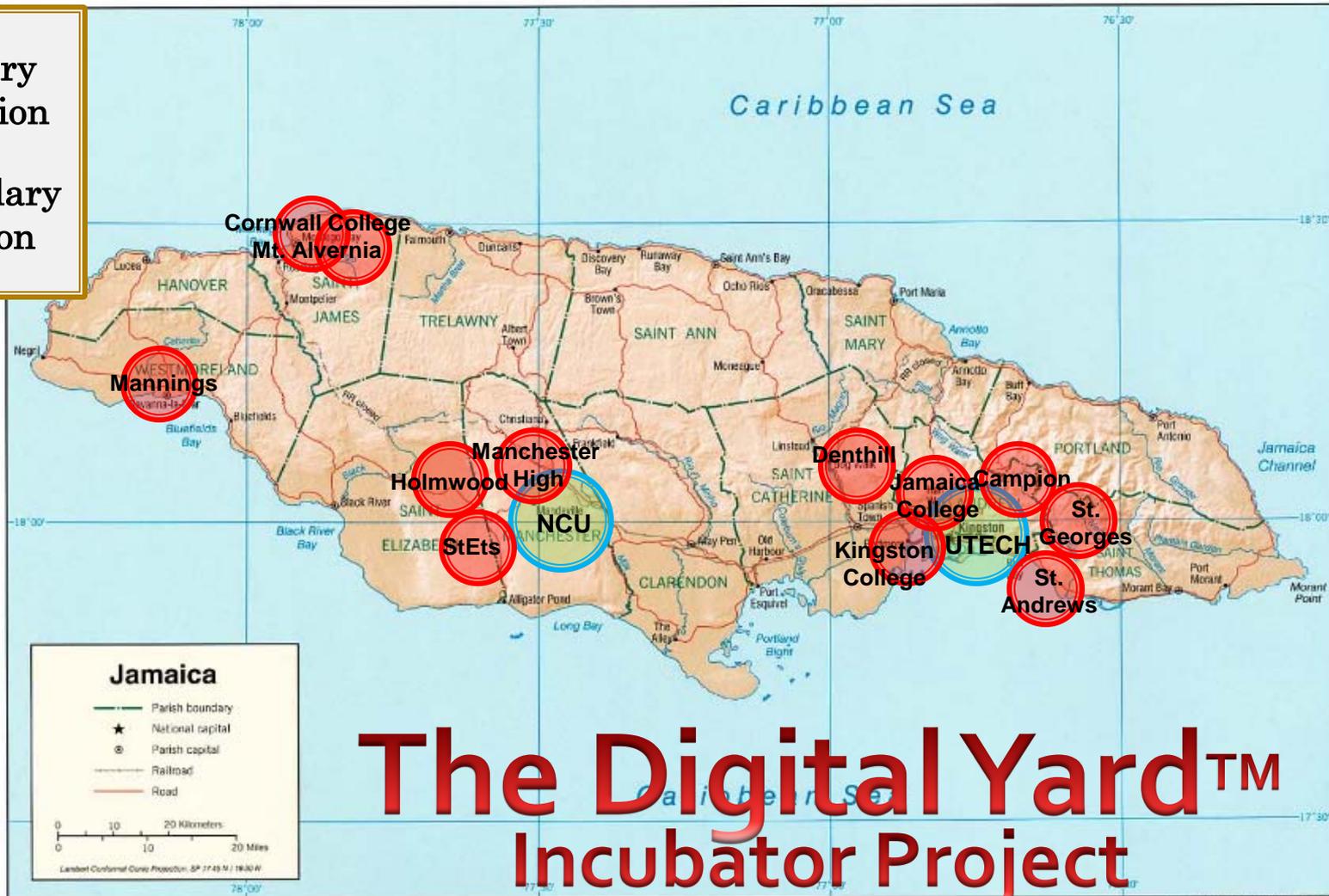
Digital Manufacturing
Tecnomatix

Islandwide STEM Innovation Centres

Technology initiative linked to major Universities

 = Tertiary Institution

 = Secondary Institution



The Digital Yard™ Incubator Project

NCU receives 1st Software Grant of \$11B(J) Making History and Pledges to Support Vision

Other stories... |



Email This Story

NCU gets Multi-billion Dollar Software Grant from Siemens

Published: Tuesday, November 24, 2009 7:03:22 PM

A software grant valued at ~~US\$11.9, 286, 184.00 million~~ or approximately JA\$10.7 Billion was yesterday presented the Northern Caribbean University (NCU) by Siemens Product Lifecycle Management (PLM) Software Inc. The presentation took place at the University's main campus in Mandeville, Jamaica.



Dr. Herbert Thompson (right) accepting the grant from Erica Simmons of Siemens PLM

"As Jamaicans we have a great vision for ourselves, that by 2030 we can be recognized as a developed

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Get Started Today

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- [Current Students](#)
- [Faculty & Staff](#)
- [Alumni](#)

AccuWeather.com[®]

Mandeville, Jamaica

Currently | Hourly Info | 15 Days



Mostly sunny

81°F

RealFeel[®]: 87°F

Winds: SE at 11 mph

The Vision for a STEM Jamaica and Nation Building is in motion

The Gleaner Jamaica WI Established 1834

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NCU Bulletin - University focused on national development with \$10B software grant from Siemens
Published: Sunday | November 29, 2009

Siemens PLM donates software to Northern Caribbean University

Maryland Heights, MO – Secondary and post-secondary schools on the island of Jamaica are the latest beneficiaries of the product lifecycle software donation program at Siemens PLM Software. The donation was announced at the end of November.

Erica Simmons, a native of Jamaica who is global marketing manager for the high-tech and energy vertical market at Siemens PLM, is working with the initiative. She will deliver the first software grant to Northern Caribbean University (Manchester, Jamaica), and has personally overseen the training of university personnel.

"It has been such an honor for me to expose the schools in Jamaica to the latest in product lifecycle management technology," says Simmons. "I know Jamaica aims to be recognized as a developed nation by 2030. I believe our software can play a very important role in developing engineering and manufacturing skills on the island, and help provide the foundation to reach this important goal."

Thompson

Diversity Careers

Siemens' manager Erica Simmons.

STEM Deployment Partners and Roles

| Partners | Role |
|------------------|---|
| Academia | <ul style="list-style-type: none">• Tertiary Level: Support advanced STEM education• Secondary Level: Begin education process for STEM as a career |
| Private Industry | <ul style="list-style-type: none">• Provide opportunities for innovation• Financing for promising nation building ideas• Utilize students as subject matter experts |
| Government | <ul style="list-style-type: none">• Policy to support STEM• Leverage STEM expertise for govt. projects |
| Non Profit | <ul style="list-style-type: none">• Leadership in STEM• Influence in society |
| Society | <ul style="list-style-type: none">• Adopt culture of STEM, Innovation and Invention• Must look to the future and use technology |

Target Pilot Schools (sample)

| School Name | Parish | Characteristic |
|---|---------------|---|
| Jamaica College | St. Andrew | Vibrant, Active, Robotics |
| Technical HS – Denthill, Holmwood, St. Andrew, Kingston | Island wide | Technical High Schools (14 in total) |
| Manchester High School | Manchester | Vibrant, NCU hub school |
| Mannings | Westmoreland | Westmoreland |
| Kingston College & St. Hughs | St. Andrew | Boys school and girls school |
| Wolmers | St. Andrew | 2 schools (girls/boys), oldest school in island |
| Cornwall College | St. James | Montego Bay boys |
| Mt. Alvernia | St. James | Montego Bay girls |
| Campion | St. Andrew | 1 of top schools on island |
| St. Andrews School for Girls | St. Andrew | Girls |
| Ewarton High School | St. Catherine | Local high school |
| Maud McLoud | Westmoreland | High School |

Tiered structure supports phased approach

TIER 1

- The school establishes a basic program to support the CAD tools
- Leveraging existing technical infrastructure add CAD tools to drafting, science or geometry instruction.
- Pledge to support the project for a period of time
- Minimal investment other than time required to set up the system and classroom

TIER 2

- The schools qualifies as in Tier 1 but further commits to establish for the pilot a **dedicated space** for an Innovation Centre
- Teach CAD, CAM and CAE
- Must have IT architecture to support the applications
- Promote collaborative development projects enabled by the software and other inputs
- All schools are encouraged to migrate to the Tier 2 level over a certain period.

Tier 2 Sample

Jamaica College Innovation Centre

- Hub of advanced technology
- State of the art technology for computer aided design, simulation, collaborative product development
- Using Solid Edge, NX, Teamcenter and Tecnomatix Manufacturing factory solutions
- Research focused on robotics, alternative energy, water conservation, etc
- Incubator for promising ideas through JCOBA

Robotics is an important focus area

The screenshot shows the homepage of the Jamaica College Old Boys Association. At the top left is the college crest and the text "Jamaica College Old Boys Association of New York". A blue banner on the right promotes the "True Blue Promotions in association with JCOBANY Presents their First Annual PATTY Festival & FAMILY FUN DAY" on Saturday, December 12th. A navigation menu includes links for HOME, ABOUT US, JAMAICA COLLEGE, EVENTS, DONATE, and CONTACT. A breadcrumb trail reads "You are here: Home" next to a search bar. The main content area features a news article titled "Jamaica College Robotics Program" dated Tuesday, 01 December 2009 12:52, written by an administrator. The article text states: "Jamaica College, partnering with JCOBANY, announced today the launch of a Robotics Program and its entry of a team into the March 2010 Regional Robotics Competition in New York and annually thereafter. In order to be successful, much support from the Jamaica College community is required. This is a worthy endeavour as it seeks to motivate students to become interested in science and technology." It includes a link to the project outline: <http://jamaicacollegeonline.synthasite.com/robotics-program.php>. A sidebar on the right lists "JC OLD BOYS ASSOCIATION" with sub-links for Jamaica College Old Boys Association, Florida, and Canada, and a "DONATE" button. The footer contains the college name, crest, and "Old Boys Association - Official Website".

Jamaica College
Old Boys Association
of New York

True Blue Promotions
in association with JCOBANY
Presents their First Annual
PATTY
Festival
& FAMILY FUN DAY

Sa
12
Evander
800 Gun

HOME ABOUT US JAMAICA COLLEGE EVENTS DONATE CONTACT

You are here: Home search...

Jamaica College Robotics Program

Tuesday, 01 December 2009 12:52 | administrator

Jamaica College, partnering with JCOBANY, announced today the launch of a Robotics Program and its entry of a team into the March 2010 Regional Robotics Competition in New York and annually thereafter. In order to be successful, much support from the Jamaica College community is required. This is a worthy endeavour as it seeks to motivate students to become interested in science and technology.

Please see the project outline on this web page: <http://jamaicacollegeonline.synthasite.com/robotics-program.php>.

Last Updated (Tuesday, 01 December 2009 18:15)

JC OLD BOYS ASSOCIATION

- Jamaica College Old Boys Association
- Jamaica College Old Boys Association Florida
- Jamaica College Old Boys Association Canada

DONATE

Jamaica College
Old Boys Association - Official Website

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Island wide Specialization

Let's all get laser focused on a specialization

- Examples:
 - Island of Hawaii has chosen shipbuilding as their specialization using CAD technology to teach shipbuilding
 - Schools in Taiwan teaching expert mold-making using 3D CAD Technology
- What can we do? Think about Jamaica's resources...
 - How about building alternative energy specialization in Sun, Wind and Wave Technologies.
 - Study how to design and manufacture those systems

Example Academic Collaboration

Tackling Global Climate Challenges



17 Schools participating in this program using SPLM Products

**INTRODUCING THE PREMIER COLLEGIATE
AUTOMOTIVE ENGINEERING COMPETITION**

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Example Academic/Govt Partnership

Tuskegee partners with the USAF on key projects

- Tuskegee and USAF form partnership where Tuskegee engineering students to provide a single source of all weapon system configurations for the extended enterprise
- Set up system to provide secure global access to all product information “anytime, anywhere” linking global sustainment teams including partners and suppliers
- Students to Implement USAF-specific business process and control rules

- ✓ Enterprise Scalability
- ✓ Re-use of Knowledge
- ✓ Document Management
- ✓ Records Management
- ✓ Configuration Management
- ✓ Change Management



- ✓ Option & Variant Management
- ✓ Process Management / Workflow
- ✓ Part Classification
- ✓ Reporting & business metrics

Deployment vehicles

- **Academic Partnerships**
 - Northern Caribbean University, University of Technology, Jamaica College, Manchester High School, Technical High Schools
- **Private Industry Partnerships**
 - Development Bank of Jamaica, Microsoft, Siemens, Tank Weld, JamRa Technology
- **Government Partnerships**
 - Ministry of Education, Prime Minister's Office, Ministry of Industry, Investment and Commerce
- **Non Profit Organizations**
 - JCOBA.org

Building Academic Alliances

- **Northern Caribbean University**

- Grant awarded November 2009
- Deployment of Siemens CAD, CAM Technology in Jan 2010
- Collaborate with other schools in the area



- **University of Technology**

- Grant application presented from Victor Watt, Associate Professor, School of Engineering and Computing – July 2009
- Partnership with UTECH Alumni assn
- Discuss being hub of technology



- **High Schools**

- Jamaica College provides leadership
- Manchester High School briefed on initiative
- Denthill & Holmwood Technical briefed



Design Competitions

- Design competitions provide excitement and a forum to share innovative ideas
- Design competitions focused around a particular topic
 - Design energy efficient innovation
 - Traffic simulations for city
 - Agricultural applications
- Sponsored by industry and government
- Develop incubator for promising ideas

Project Ideas for schools

- Sanitation systems
- Agricultural innovations
- Energy innovations
- Water desalination

Sample Prospective Industry Partnerships



All partnerships not confirmed... this is just to give an idea

Expected Results

- We expect that this project will take some years to deploy but success will be:
 - measured in the number of engineers candidates that we have entering university and the final number graduating from the university system
 - new businesses that are started
 - the increase in innovation that the Jamaican industry can experience
 - Industrial development, small manufacturing development

Engagement Model

- Tertiary Schools
 - Application process
 - Software deployment
 - Commitment to execution model
- Secondary Schools
 - Application process
 - Committee acceptance
 - Commitment to execution model

To Do's

- Secure support of Ministry of Education, Bureau of Standards Certification
- Interview with candidate high schools, full audit and technology inventory
- Curriculum development – aligned with the prescribed lesson plan
- Training – training for teachers and trainers
- IT Infrastructure deployment – desktops, laptops, servers, etc
- Software implementation services

Asks

- Collaboration on helping to set the execution model for how we are going to achieve the vision
- Connection with the right individuals to help set the plan in motion



How do we turn teams designing anywhere into innovations delivered everywhere?

The Siemens answer: PLM Software to build the right product... and make the production...

Answers for industry.

SIEMENS



How do we turn disconnected workgroups into a project team that connects with customers?

The Siemens answer: PLM Software to build the right product... and build the product right...

Answers for industry.

SIEMENS

About the Siemens Software Grant Programs



How do we turn an engineering team working in silos into a team delivering innovation everywhere?

The Siemens answer: PLM Software for a 50 percent reduction in time to market.

Answers for industry.

SIEMENS



How do we turn what customers see in the marketplace into innovation that does more than they imagine?

The Siemens answer: PLM Software for small businesses to improve customer responsiveness.

Answers for industry.

SIEMENS

About Our Academic Partnerships



With the Academic Partnership Program, you get the same software upgrades and customer support that our commercial customers receive.

Access to a broad range of software solutions - NX, Solid Edge, I-DEAS, Tecnomatix, E-vis, Teamcenter and Parasolid, as well as an extensive group of products offered by our many software partners.



Siemens PLM Software provides a total solution package for your academic institution.

Industry Software Offerings

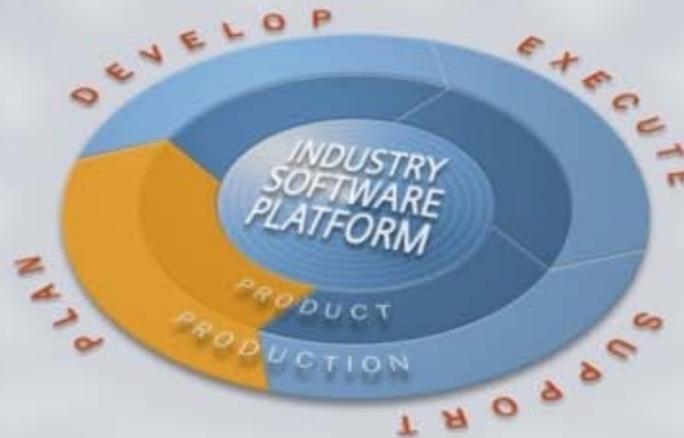
Product & Production Lifecycle Management

SIEMENS

PLM

NX **TECNOMATIX**
TEAMCENTER

Plant Life Cycle Engineering



PLM

Small/mid-sized businesses

VELOCITY SERIES

MES



4,500 new customers in FY09
 ... now 63,700 customers and 6.7M seats deployed

SIEMENS

| AEROSPACE DEFENSE | AUTOMOTIVE TRANSPORT | MACHINERY & INDUSTRIAL PRODUCTS | HIGH TECH ELECTRONICS | Consumer Products, Retail & Life Sciences |
|----------------------|-------------------------|---------------------------------------|--------------------------|---|
| | | | | |

Plus 10,000 Academic Partners... training over 1 million students per year

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Global Opportunities in Product Lifecycle Management **SIEMENS**

Just a Sample – Our Academic Partners Around the World

10,324 GO PLM Partners Globally / 1,024,910 Students Trained/Year

AMERICAS



EMEA



ASIA-PACIFIC



Our Academic Partnerships Continue to Grow!



- ***Guangdong Wuyi University Receives US\$36 Million In-Kind Software Grant from Siemens PLM Software***
- ***University of California Receives \$57 Million In-Kind Software Grant from Siemens PLM Software***
- ***Seven Straight Years: Siemens PLM Software Named Among Top Supporters of HBCU-Accredited Engineering Programs Again for 2009***
- ***SME Education Foundation, Siemens PLM Software, and National Science Foundation Invest in Future Engineers***
- ***National Taiwan University Receives US\$75 Million In-Kind Software Grant from Siemens PLM Software***
- ***Siemens PLM Software Celebrates Newest PLM Company First: Enabling the Training of More Than One Million Students around the World per Year***
- ***Anna University to Create PLM Center of Excellence with In-Kind Software Grant from Siemens PLM Software***

Siemens Software Academic Program Fees

- YEAR 1: Initialization fee as negotiated with the Siemens Representative
- YEAR 2+ = Annual maintenance fees of \$2,500 USD per Siemens product

EXAMPLE Fee Calculation

- if you selected Solid Edge (1) and NX (2) your annual fee will be \$5,000 (USD) or 2 X \$2,500 each.
- If you selected Solid Edge (1), NX (2) and Teamcenter (3) your annual fee would be \$7,500 (USD) or 3 X \$2,500 each.
- Paying your maintenance ensures that you are entitled to upgrades, bug fixes and technical support.
- The commercial value of the software will probably be into the millions of US Dollars... 1 license of our NX software is \$40K USD so this is an incredible deal

Next Steps



Contact the Siemens Representative



To determine what the right Academic Bundle is for your institution



Fill out the GRANT APPLICATION Form

For More Information



WWW.SIEMENS.COM/PARTNERS/GOPLM

WWW.SIEMENS.COM/PLM

For More Information Contact:

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 - Siemens
 - +1 214 697 3569
 - erica.simmons@siemens.com
- Donovan Jones & David Levermore
 - Jamaica College Old Boys Association NY
 - jamaicacollegeonline@yahoo.com.

Thank you!

ありがとう！

Merci!

고맙습니다！

Dziekuje!

Bedankt!

謝謝！

谢谢！

Danke!

Grazie!

Dêkuji!

Tack!

Gracias!

Obrigado!