

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

PREPARING STUDENTS TO INNOVATE

**The Campus Internship Technology
Programme**

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Eko-Konnect Research and Education
Initiative**

Background



- Applications of science and a skilled workforce can transform society
- Shortage of skilled engineers & applied scientists
- Entrepreneurship and project management lacking.
- Training not easily found within academia
- Tech hubs need to emerge on campus
- Research Driven Innovations and projects with NRENs and RRENs can help alleviate the problem

Challenge Driven Education - CDE



- Pedagogical approach to learning
- Project driven problem based learning
- ‘Challenges’ teachers, students with ‘Challenge Owners’ to develop solutions that solve problems.
- Students work in multi-disciplinary teams with oversight from a Faculty member
- NREN, RREN or business can be a Challenge Owner
- Real societal problem is addressed
- Academic credits could be awarded to students

How CDE Works



- Activities and structure are defined
 - Setup multi-disciplinary team of students
 - Define project with goals and learning outcomes
 - Peer learning and peer feedback process defined
- Extra-curricular framework different from normal academic structure put in place
- Student Internships can serve as program that complements CDE.

Campus Technology Internship Program - CTIP



- Promote technical innovation and social entrepreneurship on campus
- Is an example of citizen science
- Emphasis on coding with physical computing like Raspberry Pi, robots, Arduino & other IoT platforms
- Leverage NREN and services for inter campus communication and collaboration
- Develop and maintain application in Gitlab

CTIP GOALS



- Develop and enhance students problem solving and critical thinking skills.
- Develop entrepreneurship mindset in students
- Develop practical skills and provide opportunity for creative expression.
- Support innovative technology projects through CDE on campus.
- Promote greater inclusion of females in STEM
- Provide user & infrastructure support for campuses

CTIP Stakeholders



- Students - different disciplines
- Faculty – Management & Lecturers
- REN – Eko-Konnect, WACREN
- Project Owners – Business, End Users e.g.
REN communities of practice; beneficiaries of
CDE

Who Should Apply For CTIP...



- Students
 - Seeking cutting edge technology skills
 - Improve coding skills like Python and using Linux
 - Work with devices like robots and Raspberry Pi's
- Online Communities & User Groups
 - Promoting development of coders and STEM
 - Women in tech/stem education
 - Developing coding skills in secondary schools

Expected Impact of CDE



- Academic credits formally awarded to Interns engaged in CDE projects
- Partnerships with Eko-Konnect to develop multi-disciplinary CDE – engineering, CS, Mass Comm.
- Roles for female lecturers to anchor CTIP & CDE
- Innovative products and solutions coming to market.
- Development of human resources for institutions

...Who Should Apply For CTIP



- Faculty
 - Deans & HODs looking for new ways of developing their students through extra curricular activities
 - STEM based faculties or departments looking to build new or enhance existing labs to makerspaces
 - Faculties/Departments seeking guidance and collaboration with their NREN or industry to work on projects.

Some Potential Projects



- Developing Threat Intelligence Networks:
 - Raspberry Pi's used as sensory network
- Building Cloudlet Infrastructure
 - Raspberry Pi Clusters as low cost data storage and computing platform
 - Other collaboration projects with WACREN and researchers in Europe e.g. SINTEF, Norway

Expressions of Interest: Contact Eko-Konnect



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