ACADEMIC WELCOME 2020

Making NUST a 21st Century University: Harnessing Science and Technology for the Digital Economy

*Theme:* Innovation for Economic Revitalisation

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PRESENTATION OUTLINE

• Introduction
• Curriculum of the future, not the past
• Response to upcoming digital economy - NUST
• SWOT analysis
• Progress - 2017-2019
• NUST – 2020 onwards
• Contribution to economic growth
• Conclusion
INTRODUCTION

• A new decade 2020 - last stop before 2030, which is Namibia’s Vision

• Contributing to this national goal we should:
  • Make and keep NUST a premier university of science and technology preparing leaders for the knowledge economy
  • Teach the curriculum of the future, not the past
CURRICULUM OF THE FUTURE, NOT THE PAST

• A learner who begins primary school today will graduate from university in the mid-2030s and their career will last through 2060 or beyond.

• Graduates from this semester will retire somewhere around 2065.

• How do we know what the world will look like by then?
A Potential Future

- Population
- Societal Structure
- Human Enhancement
- Natural resources consumption
- Natural resources extraction (new techniques)
- Extraterrestrial mining (Earth's Moon)
- Energy
- Urbanization
- Robotics
- Artificial intelligence
- Labor / skills needed for mining
- Platform considerations
- 35-50 Billion IOT devices
Overwhelming evidence shows that the shift in what the workforce needs is already underway and that it will continue to grow much larger in the future.
All around the world, leaders from government and industry debate the future of work and the changes brought by technology and automation.
CURRICULUM OF THE FUTURE, NOT THE PAST (CONT’D)

How will people work, consume and live by 2050?

Study Results (Fredrik Bergström 2016):

- 97% Have shopped online
- 26% Believe that vehicles operated by people won’t exist in 20 years
- 46% Of people believe that digitization will help increase employment

The digital economy takes over
RESPONSE TO UPCOMING DIGITAL ECONOMY - NUST

• If we want to glimpse into the future, we need to look at what the leaders of tomorrow are experiencing today

• We should not aim to give students the skills only to stay marketable in the future, but the skills to create the future

• Revisit our current curricula, teaching modes and methods to prepare students for the digital economy

• Recognise our Strengths, Weaknesses, Opportunities and Threats
**Steadiness in the midst of difficulties such as lack of finances**

**Strong team of academic and admin managers**

**Competent Deans and Directors**

**Postgraduate Certificate in Higher Education implemented**

**Our students’ mind-set is of the 21st century**

**Strong work ethics and commitment to quality**

**Qualified academic staff**

**Relevant policies in place**

**Demand-driven postgraduate qualifications**

**SWOT ANALYSIS**
Limited number of supervisors for theses and mini-theses

Poor implementation of policies such as the workload policy

Insufficient research incentives

Lack of senior academics in some Departments

Unable to retain faculty due to non-competitive remuneration packages

A high rate of resignation of HODs from their positions in some Faculties

Limited financial resources to enrol a significant number of academics in the Postgraduate Certificate in Higher Education

A number of our lecturers are not teaching in the 21st century context

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Increasing and strengthened internal and external collaborations

Industry prefers NUST graduates

Nationally and internationally recognised programmes

Many students aspire to enrol for our Postgrad Programmes

Increasing pool of high school students

Growth opportunities in emerging economic sectors of nation

Opportunities
SWOT ANALYSIS (CONT’D)

- Oversubscription of students in certain sectors
- Declining resources from the state and increasing dependence on tuition revenue
- A large number of qualifications are not accredited by the NCHE
- Intake of low quality students negatively affects NUST’s throughput and retention rates

Threats
PROGRESS – 2017-2019
PROGRESS: 2017-2019
FM ACADEMIC STAFF PROFILE

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<th>Year</th>
<th>Master’s Degrees</th>
<th>Doctoral Degrees</th>
<th>Others</th>
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<td>110</td>
<td>139</td>
<td>432</td>
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<td>2018</td>
<td>249</td>
<td>132</td>
<td>89</td>
<td>470</td>
</tr>
<tr>
<td>2019</td>
<td>220</td>
<td>124</td>
<td>130</td>
<td>474</td>
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</tbody>
</table>
PROGRESS: 2017 – 2019 ACADEMIC STAFF ENROLLED FOR HIGHER QUALIFICATIONS

![Bar chart showing the number of academic staff enrolled for higher qualifications from 2017 to 2019. The numbers are 51 in 2017, 120 in 2018, and 141 in 2019.]
PROGRESS: 2017 – 2019 CONTRIBUTION TO NATIONAL DEVELOPMENT

- **2017**: 11226
- **2018**: 11235
- **2019**: 11922

- **2017**: 4254
- **2018**: 4553
- **2019**: 5265

- *Students enrolled in STEM*
- *Enrolment aligned to NDP 4&5*
PROGRESS: 2017-2019 - STUDENT ATTRITION AND RETENTION

Attrition and Retention Rates%

- 2014: Attrition Rate 17.9%, Retention Rate 82.1%
- 2015: Attrition Rate 22.5%, Retention Rate 77.5%
- 2016: Attrition Rate 23.9%, Retention Rate 76.1%
- 2017: Attrition Rate 31.2%, Retention Rate 68.8%
- 2018: Attrition Rate 26.1%, Retention Rate 73.9%
- 2019: Attrition Rate 25.7%, Retention Rate 74.3%
NUST – 2020 ONWARDS
ENHANCE TEACHING AND LEARNING TO ENSURE QUALITY AND EXCELLENCE

- Broaden innovative pedagogical approaches focused on engaging students in learning across the curriculum by implementing:
  - Blended learning
  - Flipped classrooms
  - Mastery learning
  - Team-based/problem-based learning
  - Study groups, student peer learning
  - Project based and case studies
  - Systems thinking
  - Podcasting
  - MOOC and OER
ENHANCE TEACHING AND LEARNING TO ENSURE QUALITY AND EXCELLENCE (CNT’D)

• When applicable, withdraw “under-performing” programmes based on, trends of low student recruitment or retention, poor outcomes, relevance of the programme etc.

• Revisit e-learning and distance teaching mode

• Promote expansion of opportunities for Work Integrated Learning (WIL)

• Strengthen entrepreneurship
EXPAND RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

• Attract and invest in the best PhD students

• Selectively recruit senior faculty in critical areas where the University is underrepresented or needs to accelerate development, e.g.:
  • Recruiting academic staff by making use of H-Index top researchers

• Attract and develop outstanding researchers
  • Incentive scheme for researchers should be developed at all stages of career

• Partner with internal and external stakeholders for impact
STUDENT CENTREDNESS

• Encourage pre-entry outreach activities to attract potential students to NUST, e.g.:

  Faculty outreaches in Mathematic, English, Engineering and Science areas developed this year

• Establish an enabling environment for students success, e.g.:

  Student Support Unit comprising
  • Writing section
  • Mathematic section
  • Early Alert Programme
GROW A NATIONAL AND GLOBAL PRESENCE

- Promote internationalisation

Promote internationalisation of curriculum and introduce double-degree programmes to ensure that students are exposed to global perspectives to build global competence.

Ensure development of long-term relationships with industry and alumni.
GOOD GOVERNANCE AND MANAGEMENT

• Develop new policies, e.g.: Consultancy policy, IP policy

• Strengthen professional development to improve career paths at all levels

• Develop consistent approach to academic staff development and performance review
GOOD GOVERNANCE AND MANAGEMENT (CONT’D)

Ensure compliance
CONTRIBUTION TO ECONOMIC GROWTH

• Technological innovation through commercialisation activities such as intellectual property licensing

• Capacity building of businesses that do not have their own R&D capacity

• Consultancy services opportunities for businesses to access academic specialists

• Training for private and public organisations - increases productivity and business innovation.
CONCLUSION

NUST after 2020

- Excellence in scientific, technological and innovative teaching, learning and research
- Relevance of collaborations in science, technology and innovation
- New applications of technology that promote innovation and engagement
- Promotion of Namibia into digital economy
Thank You