National Institute of Technology

We seek to create and develop Vibrant, Skilled, Competent and Work-prepared Entrepreneurial Technicians, Technologists and Professionals for the industry and the national economic vitality.

Integrated Action Project (IAP)
National Institute of Technology (NIT)

Total Marks: 100

For 2022 NIT Formal Continuous Assessments

Instructions:

A. Students are required to form groups of up to five (5) members.
B. Group members must be from same cohort doing same field of study
C. Each group member must identify a minimum of two new innovative and Industry 4.0 Technologies integrated product (goods or services) ideas that are aligned with the learning **Outcomes of the Specific Course Units** s/he is registered for and present them to the IAP Supervisor and the group for their approval.
D. From a combination of product ideas identified by each group member, each group must qualify and present two (2) top best innovative and Industry 4.0 Technologies integrated product ideas and present them to its IAP Supervisor to prequalify them for presentation and defense to the Assessments and Awards Committee (AAC) for final approval in order to proceed with the rest parts of New Product Development Process (NPDP) and Feasibility Study (FS).
E. The AAC only approve new product idea that are: (a) Innovative, (b) aligned to the learning **Outcomes of the Specific Course Units students are registered for**, and(c) integrated with the Fourth Industrial Revolution Technologies.
F. The identified innovative product ideas will be sharpened-up and unfolded during the New Product Development Process (NPDP) and the final innovative idea could be branded and implemented into a real business venture to create own business (self-employment).
G. All the members of each group are required to attend scheduled tutorial sessions during which guidance will be provided by expert facilitators on how to conduct the NPDP and FS.
H. The Final New Product Development Process (NPDP) and Feasibility Study (FS) Reports MUST be submitted through the Turnitin on or before the due date to be published through the Assessments and Awards Department circular. No print copies will be accepted.

Introduction

The Integrated Action Project (IAP) is an innovative Continuous Assessments method NIT utilizes to provide and assess student's 70% cutting-edge practical knowledge and skills on how to successfully develop innovative industry 4.0 Technologies driven products and services and to solve real challenging work place problems in a highly uncertain environment, often under considerable time constraints with very limited resources.

Upon your completion of your studies, you will be able to apply these skills in the context of both new ventures as well as in established companies.

Purpose and aims of the Integrated Action Project

The Integrated Action Project (IAP) aims to provide students with the real life practical knowledge and skills. Upon successfully passing the IAP, students will:

- **Develop and enhance Industry 4.0 Employability Skills** related to Analytical Thinking and Innovation; Reasoning, Problem-solving and Ideation; Complex Problem-solving; Critical Thinking and Analysis; Creativity, Originality and Initiative; Leadership and Social Influence; Technology use, Persuasion and Negotiation etc.

- **Be able to find problems worth solving**. Students advance their skills in customer development, customer validation, competitive analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world problems and projects.

- **Be able to mobilize people and resources**. Students identify and secure customers, stakeholders, and team members through networks, primary customer research, and competitive and industry analyses in order to prioritize and pursue an initial target market in real-world projects.

- **Be able to create value**. Students are able to generate different types of business and project ideas from idea generation to commercialization, conduct feasibility studies, create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through (1) company formation (for-profit); (2) social innovation (nonprofit); or (3) intellectual property licensing.

- **Develop and cultivate endurance**. Students increase their awareness and deliberately practice the skills and disciplines necessary to increase confidence and agency; foster self-efficacy and self-advocacy; improve communication and problem-solving skills, manage strong impulses and feelings; and identify personal purpose.

Case Study for 2022 Integrated Action Project

1.0 Overview

Namibia is a small country of about 2.5 million people, with a long coastline on the South Atlantic, bordering South Africa, Botswana, Zambia and Angola. It is the driest country in Sub-Saharan Africa, and is rich in mineral resources, including diamonds and uranium.

Political stability and sound economic management have helped anchor poverty reduction and allowed Namibia to become an upper-middle income country. However, socio-economic inequalities inherited from the past apartheid system remain extremely high and structural constraints to growth have hampered job creation. The COVID-19 pandemic has worsened socio-economic inequalities.

According to Central Bureau of Statistics of Namibia report, the Youth Unemployment Rate in Namibia increased to 46.10 percent in 2018 from 43.40 percent in 2016.

In the long-term, the Namibia Youth Unemployment Rate is projected to trend around 49.00 percent in 2022 and 47.40 percent in 2023, (Trading Economics, 2022).

2.0 Economic Outlook

After experiencing average annual growth of 4.4% between 1991 and 2015, Namibia's economy stagnated in 2016 and fell into recession in the following year. The economy has since struggled to recover. Leading up to the mid-2010s, investments in mineral extraction, a boom in exports and government spending underpinned growth. Namibia subsequently suffered from falling commodity prices, weak growth in key trade partners (Angola, South Africa) and tight fiscal policy on the back of government's effort to rebalance public finances.

The COVID-19 pandemic is having an unprecedented impact on Namibia's economy and has exacerbated preexisting structural challenges. Real gross domestic product (GDP) contracted by 8.5% in 2020. The rebound is expected to be slower than initially expected, with growth projected at 1.2 percent in 2021 and 2.4 percent in 2022. Corresponding negative per capita GDP growth and slow job creation are projected to maintain poverty near 65 percent (US$5.50 line). Going forward, the growth outlook is subject to significant uncertainty given the unknown profile of the pandemic and likelihood of further restrictions in activity if additional infections waves materialize. Progress on structural reforms will be required to raise Namibia's growth potential.

With an increase of 200,000 in 2020, the number of poor people measured by the upper middle-income poverty line ($5.5/person/day in 2011 Purchasing Power Parity terms) has reached a record-high of 1.6 million. The pandemic mostly affected already vulnerable people, which threatens to widen social gaps further and increase already extremely high inequality.

3.0 Development Challenges

Since its independence in 1990, Namibia had achieved notable progress in reducing poverty, halving the proportion of Namibians living below the national poverty line to 28.7% in 2009-10 and to 17.4% by 2015-16.

However, in part due to the negative impact of COVID-19 on livelihoods, poverty rates are projected to increase, with the upper middle-income poverty rate projected to stay near 65% through 2022. Typically, female-headed households, the less educated, larger families, children and the elderly, and laborers in subsistence farming, are particularly prone to poverty.

Severe drought conditions experienced in 2019 constrained agricultural output and led to a sharp decline in harvests. The reduction in precipitation also affected the broader economy through lower electricity and water generation, with repercussions on industrial production. These developments, along with lower diamond and mineral production, in a context of planned fiscal consolidation, have created challenging conditions for growth.

Progress toward reducing inequality has been slow and as a result, Namibia remains one of the most unequal countries in the world. The Gini index was estimated at 63.3 in 2003, 61.0 in 2009, and 59.1 in 2015.

Namibia's past steady economic growth has not been enough to deal with the country's triple challenge of high poverty, inequality, and unemployment. The weakening of growth in the last few years combined with the COVID-19 shock further put at risk social development progress.

Integrated Action Project Tasks

As an NIT student, you are fully aware of the challenging ahead of your career to secure a formal employment due to the continued contrasting economy hence you have drawn your strengths on the type of course units you are currently doing to embark on your own business upon graduating. You are determined that if you conduct a proper study and secure capital for your new enterprise, you would provide employment opportunities to other youth graduates.

Therefore, as an aspiring entrepreneur, you are required to:

Section 1.0: Conduct a New Product Development Process (NPDP) and present your report covering a minimum number of 2,500 words. The NPDP Report must cover the following topics:

1.1 Idea generation (Ideation)
1.2 Research (Discovery)
1.3 Planning
1.4 Prototyping
1.5 Sourcing
1.6 Costing
1.7 Market Testing
1.8 Commercialization

Mark Allocation for Section 1.0 is 50%

Section 2.0: Conduct a Feasibility Study and present your report covering a minimum number of 2,500 words. The Feasibility Study Report must cover the following topics:

2.1 Executive summary: Formulate a narrative describing details of the project, product, service, plan, or business.
2.2 Technological considerations: What Industry 4.0 technologies will the project use? Do you have it? If not, can you get it? What will it cost?
2.3 Existing marketplace: Examine the local, Southern African and broader markets for the product (good and service) of the intended project.
2.4 Marketing strategy: What integrated Marketing Strategy will you use to enter and operate in the planned market? Describe it in detail.
2.5 Required staffing (including an organizational chart): What types and number of people will your project need? What will be their job roles?
2.6 Project Milestones: What schedule and timeline have you planned for the project? When do you intend to do and complete each stage of the project up-to implementation/completion date?
2.7 Project financials. Did you include all the capital, expenses such as salaries, etc. and variable (cost of sale) provisions in your budget? What are the sources of funds for the project? If you wish to take a loan, do you have security?
2.8 Findings and recommendations: Break down into subsets of technology, marketing, organization, and financials.

Mark Allocation for Section 2.0 is 50%