NIGERIAN CONTENT DEVELOPMENT AND MONITORING BOARD (NCDMB)

NCDMB ADOPT A FACULTY (AAFAC) IMPLEMENTATION FRAMEWORK

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NCDMB – Glass House
Isaac Boro Expressway,
Opolo, P.M.B 10,
Yenagoa
Bayelsa State.

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1.0 INTRODUCTION

Adopt a Faculty (AAFac) Initiative is a strategic intervention program of NCDMB that seeks to link academia (institutions of learning) with oil and gas industry through deliberate interventions in the areas of infrastructure development, learning & knowledge exchange, alignment of curriculum to industry needs and research & development.

By the nature of the Oil and Gas Industry, the sector depends heavily on skilled manpower to drive exploration and production activities. The technology requirements of the sector also requires research and development support, to drive continuous process improvement and new product development.

Academic institutions provide the ecosystem for manpower development and innovation required to drive Exploration and Production activities in the Oil and Gas Industry. This underscores the importance of establishing sustainable collaboration between academia and industry operators under a structured program.
The role of academia in oil and gas value chain can further be illustrated as follows:

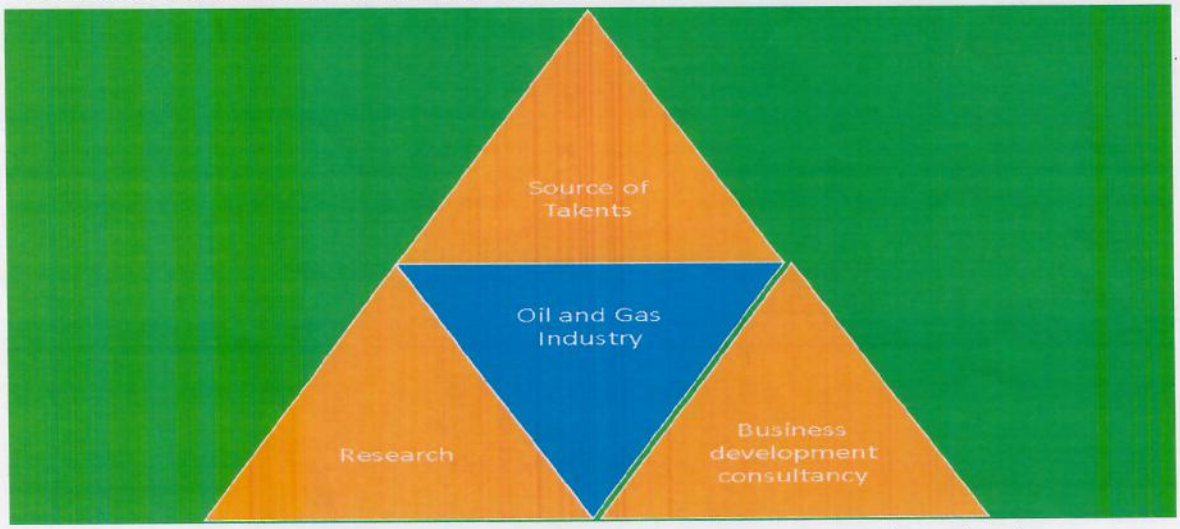
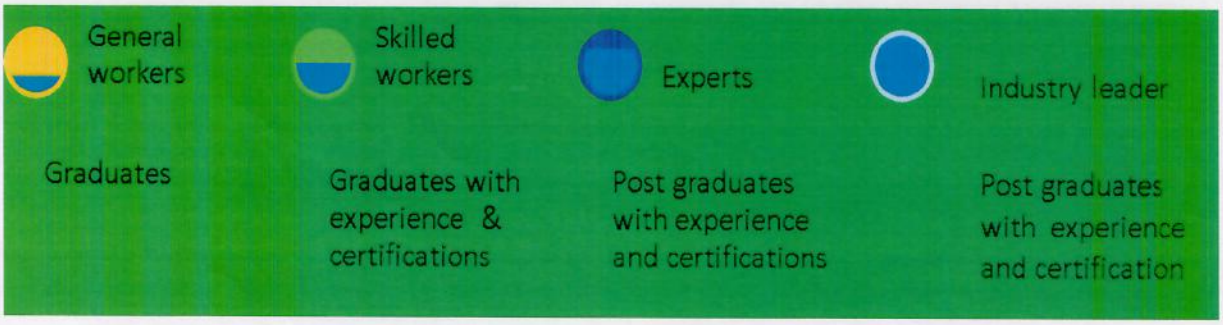


Fig.1 Collaboration framework between Oil and Gas Industry and Academia

Academia provide the foundational manpower needed for oil and gas industry operations as well as professional development of oil workers across job career path as illustrated below as career path talent development :



2.0 SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS (STEM) CONCEPT

The STEM started as an educational program to prepare primary/secondary students for University and graduate study in the fields of Science, Technology, Engineering, and Mathematics (STEM). In addition to subject-specific learning, STEM aims to foster inquiring minds, logical reasoning, multidisciplinary approach to knowledge capital and collaboration skills. The STEM concept has evolved as part of modern day Human Capital Development in view of its application in various spheres of economic and technology development

STEM evolved in view of the gaps in qualified teachers for these disciplines at the foundation levels and therefore sought to develop a program to close the gap by increasing the supply of qualified teachers for these disciplines which will in turn produce qualified graduates for the labour market.

Educators break STEM down into seven standards of practice (or skill sets) for educating science, technology, engineering, and mathematics students:

1. Learn and apply content
2. Integrate content
3. Interpret and communicate information
4. Engage in inquiry
5. Engage in logical reasoning
6. Collaborate as a team
7. Apply technology appropriately
8. Monitor application of technology

A critical segment of talents needed for oil and gas operations is centered on disciplines related to the field of Science, Technology, Engineering and Mathematics (STEM).

The role of the Academia in providing the required skilled (STEM) manpower and innovation for the overall growth of the Oil and Gas industry has been amplified in recent times. The NCDMB AAFac initiative will therefore focus on establishing a strong linkage between the STEM Academia and oil and gas industry, to ensure that the manpower needs of the oil and gas sector are resourced from pool of talents from Nigerian academia.

Oil companies can drive STEM education across 4 broad themes:

1. Learning and knowledge exchange
    a) Continuous training of lecturers
    b) Internship scheme to expose secondary and university students to oil and gas technology
    c) Excursion program to enable mentorship of STEM student by dedicated industry staff.
    d) Sabbatical program for STEM faculty lecturers to oil and gas companies that will expose the lecturers to working knowledge and desired attitude and attributes required by oil companies.
    e) Supporting student competitions which help to stimulate interest in STEM.
2. Curriculum review
    a) Continuous review of curriculum to ensure students are taught new knowledge
3. Infrastructure and Equipment
    a) Provision of modern equipment to aid teaching
    b) Provision of state of the art infrastructure that assures conducive learning environment
4. Research and Development
    a) Continuous search for new STEM knowledge and inventions

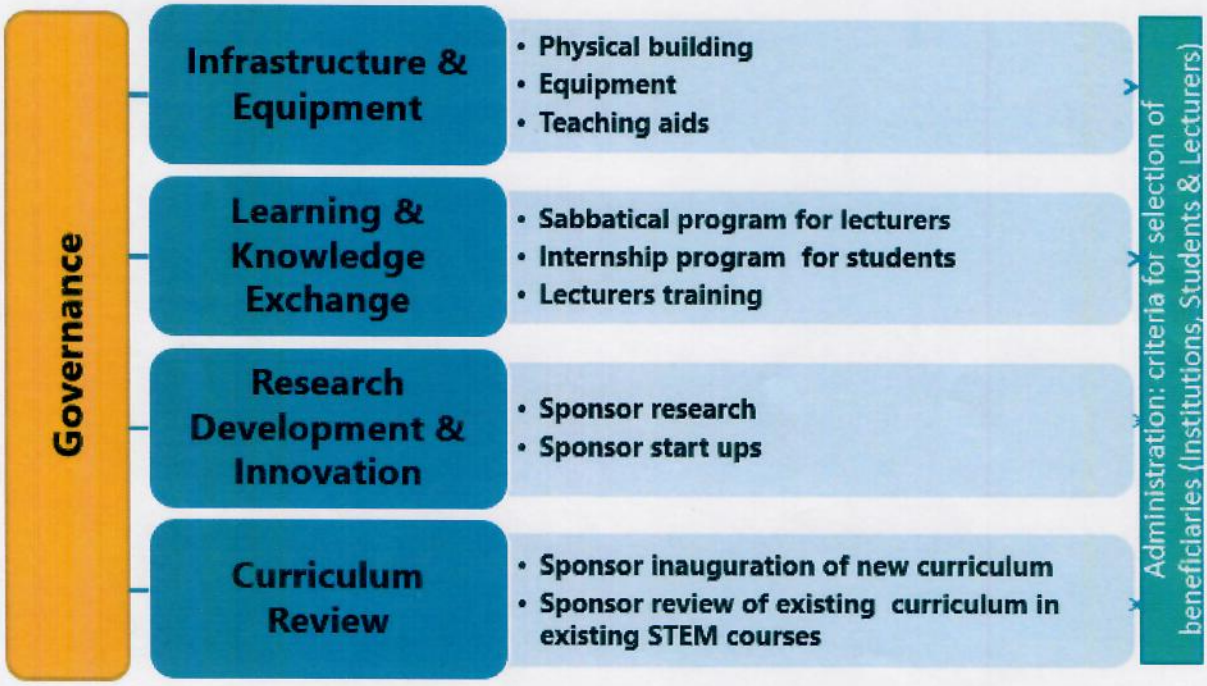
3.0 Objectives of Adopt A Faculty (AAFac)

The Objectives of AAFac include:

1. Link academia with Oil and Gas industry
2. Develop Science, Technology, Engineering & Mathematics (STEM) based courses in Universities
3. Address the problem of lack of "job readiness" of graduates from Nigerian institutions, by aligning STEM curriculum with industry trend in technology and skills
4. Train Lecturers to impart STEM knowledge relevant to the trends and needs of the Oil and Gas industry
5. Develop culture for sponsoring STEM related Applied Research relevant to needs of the oil and gas industry

6. Pilot Nigerian Oil and Gas service providers who benefit from oil and gas contracts, towards investment in facilities, infrastructure, manpower and research in STEM faculties
7. Maintain healthy pipeline of future STEM talents for oil and gas operations
8. Support progression of research breakthrough towards development of products that will be applied to industry Operations

4.0 AAFac OPERATING FRAMEWORK



4.1 AAFac OPERATING FRAMEWORK

Item/ Activity	Details
Governance	• The activities of AAFac will be overseen by the Planning Research & Statistics Directorate of NCDMB. • The Board will interface with key individuals, Universities, NUC, OPTS, PTDF, PCTS,OGTAN and PETAN on key aspects of AAFac • IOC's and service companies will be required to submit on-going & intended interventions in Universities to NCDMB

	• Service Companies that favour adopt a faculty programme will benefit from or more sure of the following; - Score in Tenders - Nigerian Content Awards • AAFac intervention shall be based on periodic needs assessment report of Universities anchored by the individual universities
Infrastructure	University or programs adopted shall benefit from intervention in infrastructure within the following scope- physical building, equipment upgrade, teaching aid, inspection and testing centers
Learning & Knowledge Exchange	• An adopted University program shall benefit from opportunity to nominate staff for sabbatical program to an industry entity. • Students from adopted university programme shall be allowed attachment slots as part of student Work Experience Scheme. • Lecturer shall be trained on the use of modern teaching aid- workstations, software, simulators etc
Research and Development	Adopted university programme will benefit from sponsorship of research topics intended to solve a Technology problem, add to a body of knowledge, lead to process improvement or result in a new technology development, and geared towards enhancement of Nigerian content in the oil and gas industry in Nigeria Research breakthrough with high market prospects will benefit from investment support fund to encourage new startups.
Curriculum Review	• An adopted university programme shall benefit from development of a upgraded curriculum to align with industry trends;

5.0 HIGH LEVEL DESCRIPTION OF INTERVENTIONS IN STEM FACULTIES

Item/ Activity	SCIENCE	TECHNOLOGY	ENGINEERING	MATHEMATICS
Infrastructure Development & Equipment	Build or upgrade Science labs (mainly geophysical & geological sciences)	Build or upgrade ICT facilities	Build or upgrade engineering workshops and labs	Mathematical laboratory for modelling problems and simulations
Learning & Knowledge Exchange	Sabbaticals , Internship & Training	Sabbaticals , Internship & Training	Sabbaticals , Internship & Training	Sabbaticals , Internship & Training
Research Development & Innovation	Support Research based on geosciences thematic area	Support Research based on Technology thematic area	Support Research based on Engineering thematic area	Support research in Mathematics & applied mathematics
Curriculum Review	Review curriculum of geosciences related courses	Review curriculum of Technology related courses	Review curriculum of engineering courses (petroleum, chemical, mechanical, electrical, metallurgical & material)	Review curriculum of mathematics and applied mathematics departments for better alignment to Engineering application

5.1 INFRASTRUCTURE

a. The periodic needs assessment of Universities conducted by the University Senate or any other authorized body shall be the main reference document for determining infrastructure gaps in STEM faculties across Nigerian universities

b. NCDMB shall publish the list of infrastructure gaps as contained in the Needs Assessment Report on the NOGIC JQS and call for sponsors from the industry (Operators and Service companies)

c. Prospective Industry sponsors shall have the opportunity to validate infrastructure needs directly with the institution prior to determination of a decision to sponsor the infrastructure intervention project for the institution

d. The broad classification of infrastructure to be developed is categorised into 2 broad areas:

- Equipment that will aid teaching e.g.
    1. Simulators (to be dictated by university needs & fund availability)
    2. Software
    3. Launch and recovery systems
    4. Workstations
    5. Testing and inspection centers/kits

  Training of personnel on the use of the equipment is mandatory

- Physical infrastructure
    - Laboratory
    - Workshops

5.2 LEARNING AND KNOWLEDGE EXCHANGE

This intervention is targeted at students and lecturers:

1. Doctorate degree level Lecturers in an adopted STEM faculty shall be selected and enrolled in sabbatical programme to a service or operating company to learn contemporary industry trends.
2. The sabbatical program shall be for a defined period which shall not be less than 12 months or sufficient period that will enable the lecturers learn and be able to transfer new knowledge to students on return to the University.

3. The sabbatical period will also enable lecturers mentor staff working in the service company or operating company.
4. Students from the adopted STEM faculty shall be enrolled in Internship program along the following guidelines
    a. Number of selected interns will be based on available slots for interns
    b. Assigned to roles that assures hands on practical experience are acquired.
    c. Benefit from mentorship by assigned mentor
5. Facilitate or sponsor bespoke training programs for target lecturers

5.3 RESEARCH AND DEVELOPMENT

Scope of R&D intervention shall include:

1. Focus is on STE(m) based applied research
2. Typical broad areas of research interest are aligned to the five (5) thematic areas depicted below –
    a. Geology & Geophysical [G & G]
    b. local material substitution [LMS]
    c. Health, Safety & Environment [HSE]
    d. Engineering
    e. Technology Adaptation
3. Local content philosophy shall apply in the methodology and input required to execute the research i.e maximize utilization of local human and material resources

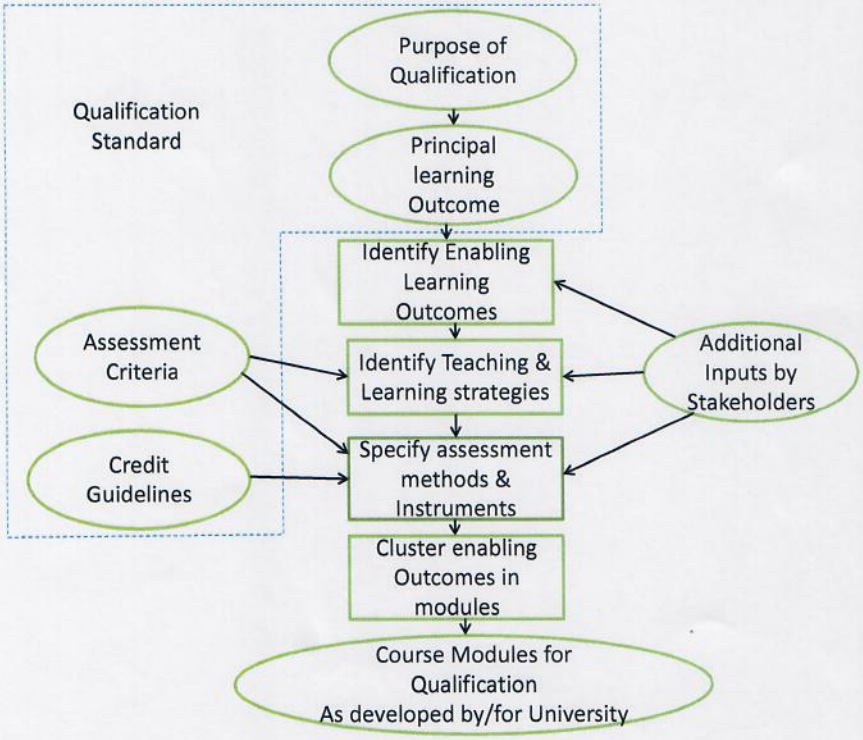
5.4 CURRICULUM DEVELOPMENT

The scope of intervention shall cover:

1. Sponsor development of a new curriculum for a new area of STEM study.

2. Sponsor study to benchmark STEM-related curriculum of a discipline in a Nigerian university in comparison to a foreign university, to identify gaps and embark on curriculum review.
3. Sponsor study to assess relevance of curriculum to the latest technology requirements in specific areas such as deep offshore exploration and production.

Curriculum development implies familiarization with the relevant Nigerian University Commission Qualification Standards and identification of curriculum contents and strategies. University Qualification Standards prescribe the purpose of a qualification, principal learning outcomes for realization of the purpose(s) and associated credit guidelines and assessment criteria. The procedure for curriculum development shall follow the following steps:



Key Steps constituting Curriculum Development Process

6.0 KEY PERFORMANCE INDICATORS AND TARGET

Key Performance Indicators

1. Number of curriculum review initiated 'in STEM faculty
2. Number of STEM faculties adopted by Service companies, Operators or NCDMB
3. Number of equipment donated to STEM faculties
4. Number of infrastructure built in STEM faculties or upgraded
5. Number of exchange programs (sabbatical & interns) signed between industry and a STEM faculty

S/N	TIME FRAME	NIUMBER OF AAFAC (STEM) INTERVENTIONS
1.	2019-2020	6
2.	2020-2021	7
3.	2021-2022	10
4.	2022-2023	12
5.	2023-2024	15
6.	2024-2025	16
7.	2025-2026	17
8.	2026-2027	17
Total		100

Reward System for AAFac Adoptee

1. Source of talented workforce for the Adoptee
2. Enhance profile of Adoptee as contributor to National knowledge capital
3. Key Corporate Social Responsibility (CSR) intervention
4. Enhance Nigerian content index of Adoptee in Nigerian content evaluations

7.0 AAFAC IMPLEMENTATION PLAN

Activity	1 Year activity plan for AAFac													
	Mar 19	Apr 19	May 19	Jun 19	Jul 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20
Develop implementation framework R: NCDMB														
Publish AAFaC Implementation framework														
Obtain list of STEM faculties and needs assessment study of universities from NUC *(R: NCDMB)*														
Obtain and create database of oil and gas interventions in universities by Service Companies & Operators *(R: NCDMB)*														
Conduct gap analysis from needs assessment and on-going interventions *(R: NCDMB)*														
Determine and publish STEM faculties & institutions with specific intervention areas														
Issue guideline on AAFac *((R:NCDMB)*														
Monitor implementation *(M&E)*														