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THE NEED FOR ENVIRONMENTAL EDUCATION IN TECHNOLOGY AND ENGINEERING PROGRAMMES.

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ABSTRACT:

It has been observed that environmental education has not received the emphasis it deserves in technology and engineering programmes. This paper stresses the need for and the aims/objectives of environmental education in technology and engineering programmes. The paper also highlights the possible ways of incorporating environmental education into technology and engineering, in order to achieve the desired objectives. Finally recommendations are made in order to ensure sound environmental education in technology and engineering innovations.

INTRODUCTION

Environment according to UNESCO, (1986) encompasses everything living and non-living objects, the interaction between these and the product of their interactions. Both sets of "reactants" are said to be open to change as a result of their interactions. Tolba, (1991) pointed out that the physical environment is where all human beings live and that it provides the resources and ecological processes which make all life possible.

Rodda, (1993) observed that the environment and human health are inevitably inter-linked and that a healthy environment is essential to the health and well-being of the planet and its inhabitants who depend on it for the air they breathe, the water they drink and the food they eat. The physical environment influences both individual and community development. This is because development evolves from peoples increasing ability to utilize the environment and its resources in production of the needed goods and services. World Commission of Environment Development (WCED), (1987) reported that in the process of using the environmental resources or fabricating them for use (i.e. the process of development). Man releases a wide range of toxic materials that go to pollute the air, water and the land, the very elements that sustain life. It thus becomes vital that the environment be properly protected and managed in order to ensure its sustainability. This calls for environmental education for all individuals who live and operate in the physical environment.

THE NEED FOR ENVIRONMENTAL EDUCATION IN TECHNOLOGY AND ENGINEERING PROGRAMMES

Aina and Salau, (Eds) (1992) observed the better understanding of the environment the more effectively it can be used and supported. It has also been observed that intelligent and effective citizen participation in environmental care requires public awareness by knowledge from sciences and humanities. (Connect, March 1991). This also requires the development of attitudes and practical skills, which aid people to live in a manner which enhances environmental quality and reduces environmental degradation. This emphasizes the need for environmental education.

Stapp, (1987) defined environmental education as education aimed at "producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how

to help solve these problems, and encourage the development of new solutions? The extent to which environmental education is used in the curriculum is a function of the nature of the problem, the nature of the solution, the nature of the institution, the nature of the teacher, and the nature of the student. Environmental education should be a continuous process of providing information, resources,

training, and research opportunities to students and faculty alike. Training should be provided to help them understand the nature of the problem, the nature of the solution, the nature of the institution, the nature of the teacher, and the nature of the student.

Encouraging faculty to use environmental education opportunities in their courses, and to provide ongoing support to those who are doing so, is a key to success.

While having environmental education in the curriculum is a necessary condition for success, it is not sufficient. The environmental education curriculum must be designed to provide students with the knowledge and skills necessary to understand the nature of the problem and the solution. The curriculum must be designed to provide students with the knowledge and skills necessary to understand the nature of the problem and the solution. The curriculum must be designed to provide students with the knowledge and skills necessary to understand the nature of the problem and the solution.

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AIMS/OBJECTIVES OF ENVIRONMENTAL EDUCATION IN TECHNOLOGY AND ENGINEERING EDUCATION PROGRAMS

- Making students aware of the specific environmental problems and the nature of the solution.
- Encouraging the students to use the knowledge and skills necessary to understand the nature of the problem and the solution.
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- Enabling the student to understand the construction and design, use and maintenance of protective measures as well as the technology that might be applied in reducing or removing the relevant environmental risks. For instance certain occupations require the use of protective clothing such as overalls made from special fabrics, special gloves, goggles, protective head gear, special shoes e.t.c. The technology and engineering graduate should be able to understand the working of such technologies and be able to use them when necessary in the course of their work.
- Training of engineers and technologists, preparing them not only to meet the development challenge of the society within which they live but also to be sensitive to their environmental dangers that can result from the very process of development.

CONCLUSION

Environmental education should be incorporated in the university curriculum so that student of technology and engineering education programmes undertake course on environmental education at each level of their studies. Graduated of technology and engineering education programme are expected to be gainfully engaged in development including the utilization of resources to produce the needed goods and services. For this development to be sustainable, the graduate have to be able to efficiently manage both their working environment and the wider environment in order to ensure that the environment is not abused and that resources are used properly and health of workers protected.

Therefore, the graduates of technology and engineering education programmes require sound environmental education to enable them acquire the necessary skills to solve environmental problems

RECOMMENDATIONS

In order to achieve the desired objectives of environment education in technology and engineering education programmes. The following recommendations are made:

- A general introduction to themes, perspectives and basic knowledge about the environment should be given at undergraduate level courses at university to student of technology and engineering programmes.
- Environmental education should focus on graduate level research topics as part of the work required for advance degree.
- Environmental topic should be introduced as an integral part of professional and technical training at undergraduate levels. Some students specialize in the environmental aspect of a particular profession e.g. in engineering, water pollution to civil and chemical engineering students, air pollution to chemical and mechanical engineering students, noise and vibration to mechanical and electrical engineering students.
- Through appropriately planned school/industry linkage programmes environmental education can also form an important part of the on-the job training and experience for the students of technology and engineering education programmes.
- Emphasis should be given to learning about the environmental implications related to each persons main field of study and developing the appropriate skills needed to co-operate effectively in problem solving at post graduate level to students of technology and engineering education programmes.

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