



SHORT LEARNING PROGRAMME COMMERCIAL AND INDUSTRIAL ANAEROBIC DIGESTION

INTRODUCTION

The aim of the SLP is to develop expertise in this field of renewable energy to promote the resource recovery from commercial farms, food processing industries, municipal solid waste, research centres and workplaces with high concentration workers and waste generation potentials.

Strong emphasis will be made on understanding the engineering design factors and calculation, security of waste, legislative requirements, financing, off-taker agreement, operation and maintenance, type of special purpose vehicle for such project and dealing with digestate among other important factors to consider.

TOPICS

The following topics will be covered:

- Overview of the fundamentals of anaerobic digestion and small scale digesters
- Energy audit and resource evaluation
- Substrate sources, assessment, sampling, characteristics and supply management
- Protocol for BMP, result interpretation and application
- Digester: Science and Engineering
- Process engineering and design calculation of major equipment
- Process technology for upstream pre-processing of substrate
- Utility requirement calculation
- Biogas to energy: Gasholder, preparation, piping, compression and utilisation
- Development, reading and understanding engineering drawing (BFD, PFD, PID)
- Material and energy balance calculations
- Engineering specification of major components
- Legislative requirement and guidelines concerning industrial biogas plant
- Project management
- Legislative requirement
- Product off-take and contracting
- Financing and economic viability metrics
- Contracting and Legal instruments
- Eskom Electricity code, standard for Feed-in and SALGA requirements
- Start-up and commissioning
- Operation and maintenance

THE BENEFITS OF THE PROGRAMME

The knowledge gained from this SLP can be applied to other process design and engineering fields that are multidisciplinary in nature, but most importantly to support the biogas industry in South Africa, creating the skilled manpower required to initiate, design, finance, manage construction processes and operate such energy systems.

Specialised skill sets built to:

- enable appropriate decision making
- critiquing proposal to municipalities, banks and other funding agencies for industrial scale biogas plant
- provide skilled labour operating in the technical domain to facilitate delivery of a functional commercial/industrial anaerobic digestion plant.

Knowledge gained in this course can be exported to other countries in the form of expatriate, product development and system optimisation

THE PROGRAMME

- 1 week of contact lectures (40 hours)
- 2 days of on-site work
- 20 hours of preparation for the assessments
- 4-hour site visit / work-based learning
- 4-hour lab practical / tutorial
- 12 hours of independent learning and engaging with mandatory reading and supplementary materials provided

Total no of hours: 96

CANDIDATE REQUIREMENTS

- NQF level 5
- Two-year minimum experience in anaerobic digestion technology or wastewater treatment plant or chemical process industry will be an added advantage.

Candidates successfully completing the programme receive a Certificate of Completion.

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