

## Remote Study Opportunity in Technoeconomic Analysis Offered by the Thayer School of Engineering, Dartmouth College, USA

### 1.0 Opportunity

icipe BioInnovate Africa, Kenya (<https://bioinnovate-africa.org/>) and the Thayer School of Engineering at Dartmouth College, USA (<https://engineering.dartmouth.edu/>) are partnering to offer remote (online) instruction in technoeconomic analysis (TEA) to selected Eastern African students. Two courses, which attract credit units, will be offered as follows:

**a. Engs 157: Chemical Process Design:** An in-depth exposure to the design of processes featuring chemical and/or biochemical transformations. Topics will feature integration of unit operations, simulation of system performance, sensitivity analysis, and system-level optimization. Process economics and investment return will be emphasized, with extensive use of the computer for simulation and analysis. The course will be taught in a lecture format featuring homework assignments, a final exam, and an independent project. The course has one credit unit - equivalent to .5 semester hours or 5 quarter hours - and is offered during the Dartmouth Winter term, **03 January 2024 – 12 March 2024**.

**b. Technoeconomic Analysis in a Developing Country Context:** Drawing from tools developed in the above course, students will analyze and evaluate projects and/or technologies intended for deployment in developing countries. The course will be taught in a workshop format, will include a slate of expert guest speakers spanning a variety of topics, and will focus on student-initiated projects. The course has one credit unit - equivalent to .5 semester hours or 5 quarter hours - and is offered during the Dartmouth Spring term, **25 March 2024 – 29 May 2024**.

The courses will be attended by both Dartmouth and Eastern African students.

### 2.0 Sponsorship

The course, offered in English, is fully sponsored by icipe BioInnovate Africa and Dartmouth College.

### 3.0 Eligibility

Students already enrolled in a graduate degree program at Eastern African Universities in the BioInnovate Africa focus countries of Burundi, DR Congo, Ethiopia, Kenya, Rwanda, South Sudan, Tanzania, and Uganda are eligible to apply. Applicants must also demonstrate their access to computing and internet connectivity resources sufficiently robust to accommodate online remote study and should be competent to take the course in English.

### 4.0 Selection

Ten (10) students will be selected. Selection will be made by the Thayer School of Engineering in consultation with icipe BioInnovate Africa according to the following criteria:

- Interest/need:** Demonstrated interest, “need to know”, and opportunity to apply skills learned.
- Technical background:** Chemical engineering (thermodynamics, transport, kinetics, and reactor design); quantitative analysis (spread sheets, computer programming/simulation).

Biotechnology background is relevant and valued provided students are interested in process-level analysis and have strong quantitative skills.

### 5.0 How to apply

Application should consist of:

- One-page motivational essay addressing interest in technoeconomic analysis and how it is relevant to the student’s ongoing studies.
- A document reporting Internet speed<sup>1</sup> of computer(s) and internet connection(s) student will use for coursework.
- A two-page student resume emphasizing courses taken and other relevant experience.
- An official letter of support from the student’s supervisor or head of department.

All applications should be submitted electronically using the link:

[http://grants.bioinnovate-africa.org/forms/technoeconomic\\_analysis\\_2024.php](http://grants.bioinnovate-africa.org/forms/technoeconomic_analysis_2024.php)

The deadline for receiving applications has been extended to Monday, **20 November 2023 at 11:59 pm East Africa Time**.

<sup>1</sup>pleasereport1)downloadspeed(Mb/s);2)uploadspeed(Mb/s);and3)latency(aka“ping”;ms). Instructions for using M-Lab’s speed test available at: <https://speed.measurementlab.net/#/>