FACILITATORS GUIDE

**Module Title: Biotechnology, Biosafety and Biosecurity**

This course module is arranged in four units (**see table below**);

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| **GUIDE MODULE** | **PURPOSE** |
| **Module description** | Advances in technology, increased global travel, terrorist interest in weapons of mass destruction, and increased interconnections between humans, animals, and the environment have all intensified the potential for pandemics. Artificial pandemics are also becoming a growing source of concern as biotechnology capability advances, as is the possibility of misuse. |
| **Purpose** | To enhance learning of prevention, protection, control and provide a public health response to international spread of diseases. |
| ***Unit 1: Introduction to Laboratory Science*** | The unit introduces students to fundamental experimental approaches in bioscience and biomedical research. Students will gain experience of a diverse array of experimental organisms ranging from microbes to plants to humans and also introduces students to the basic skills and techniques that underpin laboratory investigation to build the expertise and knowledge that will be required by students to undertake synthetic biology and biotechnology unit. |
| ***UNIT 2: Synthetic Biology and Biotechnology*** | Synthetic Biology and Biotechnology will provide an in-depth understanding of the grand challenges in biotechnological applications and the principles underlying synthetic biology and modern biotechnological techniques that are designed to sustainably address specific societal problems. The unit will also introduce to students tools and strategies being developed and applied in the rapidly expanding field of synthetic biology. |
| ***UNIT 3: Global Health Security Policy*** | Explores issues emerging from the interaction of health and security that represent novel challenges to policy makers confronting a rapidly changing international landscape. Examines the origin and evolution of the concept of health security. Analyzes strategic impact of infectious disease outbreaks, global health security case studies, global health governance, and formulation and implementation of local, regional and international health security policies. |
| ***UNIT 4: Nuclear, Biological, and Chemical Weapons Policy and Security.*** | Explores the causes, conduct, and consequences of the proliferation of nuclear, biological, and chemical weapons. Covers the historical, technological, normative, and strategic factors that have promoted and restrained the spread of these weapons. Addresses the motives for states to develop these weapons and the debate over the security implications of nuclear, biological, and chemical weapon proliferation. Examines the capabilities and intentions of terrorists to acquire and use chemical, biological, radiological, and nuclear (CBRN) weapons. The course provides an in-depth understanding of the history of CBRN terrorism, the current challenges posed by this threat, and the range of national and international policy tools available to address this threat. |

Teaching techniques:

* This will involve group discussion, group work and presentation related to the topics outlined under each unit
* Case studies and case scenario related to each topic will be provided
* Take home course works will be provided
* Attending relevant workshops locally or if possible regionally and internationally
* Field visits where possible followed by report writing and presentation. This could be in relevant ministries to understand policy issues, industry etc