

NTU TAUGHT MODULES

Module Synopses (Academic Year 2017)

Subject	H ₃ Module Title	Pre-Requisite H ₂ Subject	Preclusion(s)	Host Centre(s)	Page
Biology	Molecular Biology	H ₂ Biology	MOE H ₃ Proteomics	HCI	1
Physics	Semiconductor Physics & Devices	H ₂ Physics	MOE H ₃ Essentials of Modern Physics	HCI	2
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MOLECULAR BIOLOGY

Host Centre: Hwa Chong Institution (HCI)

Pre-requisite: H2 Biology

Preclusion: This course cannot be offered together with MOE H3 Proteomics

MOLECULAR BIOLOGY focuses on the areas of *Biomolecules* and *Recombinant DNA Technology*.

Biomolecules explores the 3-dimensional structure of biomolecules and offers insights into forces that govern their structure and functions. Students will learn to assess databases and software to analyse and to visualise the 3-D structures of biomolecules.

Recombinant DNA Technology introduces modern biotechnology concepts and methodologies, which includes DNA/protein manipulation and analysis, mass spectroscopy and nuclear magnetic resonance (NMR). Students will also be introduced to biomedical technologies such as stem cell research, as well as the generation of knockout/transgenic animals.

The course will be conducted through lectures, tutorials and laboratory sessions (computer & wet-laboratory).

Assessment will be based on the following components:

- Laboratory assignments – Wet-Laboratory Practical Report (20%)
- One 2½-hour written Final Examination (80%)

Direct any further module-specific enquiries to TalentOutreach@ntu.edu.sg.

SEMICONDUCTOR PHYSICS & DEVICES

Host Centre: Hwa Chong Institution (HCI)

Pre-requisite: H2 Physics

Preclusions: This course cannot be offered together with MOE H3 Essentials of Modern Physics

SEMICONDUCTOR PHYSICS & DEVICES is designed to stimulate students' interest in science and engineering, and to help them broaden their educational experience. It is intended for students wishing to pursue deeper studies in Physics and Semiconductors.

Students enrolled in the course will learn the key theorems of semiconductors and the operating principles of semiconductor devices. Hands-on sessions on semiconductor materials and devices will be provided. Through this module, students will also acquire an understanding and appreciation of the driving force behind the convergence of semiconductor technologies, which is imperative to our daily life, and its evolution.

The course will be conducted through lectures, tutorials and laboratory sessions.

Assessment will be based on the following components:

- Laboratory Assignments (Report & Viva) (10%)
- Two 1-hour written Mid-Term Tests (20%)
- One 2½-hour written Final Examination (70%)

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Programme Information

Subject	H3 Module Title	Pre-requisite H2 Subject	Host JC	Lesson Schedule	Assessment	Tests & Examination Schedule
Biology	Molecular Biology	H2 Biology	HCI	<p><u>Lectures / Tutorials</u> Fridays 4:00 – 7:30pm</p> <p><u>Laboratory</u> Saturdays 14 Jan 2017 to 25 Feb 2017 9:00am – 12.30pm</p>	<ul style="list-style-type: none"> ▪ Wet-Laboratory Practical Report ▪ Final examination 	<p>Report Submission: Date: 21 Apr 2017, Fri Exam: 17 May 2017, Wed</p>
Physics	Semiconductor Physics & Devices	H2 Physics	HCI	<p><u>Lectures</u> Thursdays 4:00-6:30pm</p> <p><u>Tutorials</u> Mondays / Tuesdays 3:00pm – 5:00pm OR 5:00 – 7:00pm</p> <p><u>Laboratory</u> Refer to schedule issued by lecturer</p>	<ul style="list-style-type: none"> ▪ Laboratory assignments (report & viva) ▪ Term tests ▪ Final examination 	<p>Test 1: 28 Mar 2017, Tues Test 2: 02 May 2017, Tues Exam: 25 May 2017, Thu</p>