



## Module Synopses & Programme Information

(Academic Year 2022)

Subject	H3 Module Title	Pre-Requisite H2 Subject	Preclusion(s)	Venue(s)	Page
Biology	Molecular Biology	H2 Biology	MOE H3 Biology	NTU	1
Physics	Semiconductor Physics & Devices	H2 Physics	MOE H3 Physics	HCI & NTU	2
Summary	NTU-H3 Taught Modules – Programme Information				3

## **MOLECULAR BIOLOGY**

Venue: Nanyang Technological University (NTU)

*Pre-requisite: H2 Biology*

*Preclusion: This course cannot be offered together with MOE H3 Biology*

**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:

- Experimental Competency
- Wet-Laboratory Practical Report
- One 2½-hour Written Examination

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

## SEMICONDUCTOR PHYSICS & DEVICES

Venues: Hwa Chong Institution (HCI) & Nanyang Technological University (NTU)

*Pre-requisite: H2 Physics*

*Preclusion: This course cannot be offered together with MOE H3 Physics*

**SEMICONDUCTOR PHYSICS & DEVICES** is designed to stimulate students' interest and broaden their educational experience in Science and Engineering. It is intended for students wishing to pursue deeper studies in Physics and Semiconductors.

Students enrolled in the course will learn the theories and properties of semiconductors, and the physics and operating principles of semiconductor devices. Hands-on laboratory sessions on semiconductor materials and devices will be provided to supplement the learning of the course. Students will also acquire an understanding and appreciation of the evolution of semiconductor technologies and the driving force behind its convergence.

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

Assessment will be based on the following components:

- Laboratory Assignments (Report & Viva)
- Two 1-hour Written Mid-Term Tests
- One 2½-hour Written Examination

Direct any further module-specific enquiries to [TalentOutreach@ntu.edu.sg](mailto:TalentOutreach@ntu.edu.sg).

## Programme Information

Subject	H3 Module Title	Pre-requisite H2 Subject	Venue(s)	Lesson Schedule	Assessments		Report, Tests & Examination Schedule							
					Component	Weightage								
Biology	Molecular Biology	H2 Biology	NTU	<p><b><u>Lectures</u></b> Thursdays: 4.30pm – 6.30pm</p> <p><b><u>Tutorials</u></b> Fridays: 4:30pm – 7.30pm</p> <p><b><u>Laboratory Sessions</u></b> 5 Sessions on Saturdays (Refer to schedule issued by lecturer)</p>	<table border="1"> <tr> <th>Component</th> <th>Weightage</th> </tr> <tr> <td>Experimental Competency</td> <td>5%</td> </tr> <tr> <td>Wet-Laboratory Practical Report</td> <td>15%</td> </tr> <tr> <td>Written Examination</td> <td>80%</td> </tr> </table>	Component	Weightage	Experimental Competency	5%	Wet-Laboratory Practical Report	15%	Written Examination	80%	<p><b><u>Submission of Report</u></b> 8 April 2022 (Fri)</p> <p><b><u>Written Examination</u></b> 13 May 2022 (Fri) 2.00pm – 4.30pm</p>
Component	Weightage													
Experimental Competency	5%													
Wet-Laboratory Practical Report	15%													
Written Examination	80%													
Physics	Semiconductor Physics & Devices	H2 Physics	HCI & NTU	<p><b><u>Lectures</u></b> Thursdays: 4:00pm – 6:30pm</p> <p><b><u>Tutorials</u></b> Mondays: 3:00pm – 5:00pm / Mondays: 5:00pm – 7:00pm / Tuesdays: 3:00pm – 5:00pm / Tuesdays: 5:00pm – 7:00pm</p> <p><b><u>Laboratory Sessions</u></b> 3 Sessions (Refer to schedule issued by lecturer)</p>	<table border="1"> <tr> <th>Component</th> <th>Weightage</th> </tr> <tr> <td>Laboratory Assignments (Report &amp; Viva)</td> <td>10%</td> </tr> <tr> <td>2 Mid-Term Tests</td> <td>20% (10% each)</td> </tr> <tr> <td>Written Examination</td> <td>70%</td> </tr> </table>	Component	Weightage	Laboratory Assignments (Report & Viva)	10%	2 Mid-Term Tests	20% (10% each)	Written Examination	70%	<p><b><u>Mid-Term Test 1</u></b> 22 March 2022 (Tue) 5.15pm – 6.15pm</p> <p><b><u>Mid-Term Test 2</u></b> 26 April 2022 (Tue) 5.15pm – 6.15pm</p> <p><b><u>Written Examination</u></b> 17 May 2022 (Tue) 2.00pm – 4.30pm</p>
Component	Weightage													
Laboratory Assignments (Report & Viva)	10%													
2 Mid-Term Tests	20% (10% each)													
Written Examination	70%													

Information above is correct as of 29 Sep 2021 and is subjected to changes