4.2.2.7 Master of Science in Pharmaceutical Science and Technology (Part-Time)

NUS Department of Pharmacy has been running the Master of Science (Pharmaceutical Science and Technology) [MPST] programme since 2008. This part-time course-work based programme was initiated in response to directions from EDB to train science, pharmacy and engineering personnel to be proficient and knowledge-ready to meet the needs of the pharmaceutical / biopharmaceutical industry in Singapore. To make our students relevant in the future pharmaceutical / biopharmaceutical industry, we have adopted a broad-based approach in our curriculum, to encompass the various stages of pharmaceutical/biopharmaceutical development.

Prospective students who are already working in or aspiring to enter the pharmaceutical / biopharmaceutical industry are invited to apply for this programme. Currently, the programme is only available in the part-time mode and students are allowed up to 4 years to complete the programme. Upon graduation, the graduates are capable of contributing in various aspects of the pharmaceutical / biopharmaceutical industry, ranging from research, formulation, processing, manufacturing, quality assurance, product management and regulatory compliance.

Learning Outcomes
Graduates from this programme will enhance their on-the-job competency by:

- Gaining in-depth knowledge and practical skills for formulation and process manufacturing of chemical and biological drugs into a range of pharmaceutical dosage forms, ranging from tablets to injectables.
- Acquiring understanding of the regulatory and quality compliance of pharmaceuticals in the process of drug development and manufacturing.

Admission Requirements
Prospective students will have two pathways towards the MPST part-time programme: A) Direct admission route; B) ‘Stackable’ route (including graduate certificate).

Note: Students who have started on a selected pathway are not allowed to switch over to the other route.

A) Direct admission route
To be admitted directly into the MPST part-time programme, candidates must be holders of at least a 2nd Class Lower Honours classification (or equivalent) in one of the following degrees, or their equivalent:

- Bachelor of Science (Honours) in Chemistry, or
- Bachelor of Science (Honours) in Life Sciences, or
- Bachelor of Applied Science (Honours) in Food Science & Technology, or
- Bachelor of Applied Science (Honours) in Applied Chemistry (Drug Option), or
- Bachelor of Science in Pharmacy (Honours), or
- Bachelor of Engineering (Chemical Engineering) (Honours)

Candidates, who do not have Honours classification in the degree pre-requisites as stipulated above, may apply for admission with GRE results. Candidates, who hold equivalent degrees from overseas
universities, may apply for admission with GRE and TOEFL results. Such candidates, if found suitable, would be considered on a case-by-case basis.

B) ‘Stackable’ route (including graduate certificate)
The ‘stackable’ route is for students who had completed individual modular courses and who subsequently decide to pursue the MPST degree by crediting the relevant modules taken. Candidates will require a relevant degree as listed under direct admission requirements. Students who do not fulfil the degree requirement outright can appeal with justification, and the case will be reviewed individually.

For more information on the ‘Stackable’ route (including graduate certificate), please refer to “Admission Requirements” at http://pharmacy.nus.edu.sg/msc-pharmaceutical-sciences-technology/

Programme Structure
Candidates admitted into the Master’s degree programme must read and pass a total of 10 modules (40 MC), comprising 5 core modules and 5 elective modules:

5 Core Modules, 4 MCs each:

- PR5211 Pharmaceutical Analysis IV
- PR5217 Formulation Science
- PR5218 Methodologies in Product Development (Capstone module)
- PR5198 Graduate Seminar Module in Pharmacy
- PR5304 Fundamental Topics in Pharmaceutical Science

5 Elective Modules, 4 MCs each; To be chosen from any of the following:

- PR5213 Pharmaceutical Process Validation
- PR5214 Advances in Tablet Technology
- PR5216 Advances in Drug Delivery
- PR5220 Bioprocess Technology
- PR5225 Preformulation Science
- PR5219 Product Quality Management
- PR5224 Pharmacoeconomics
- PR5230 Pharmacoeconomics and Outcomes Research
- GMS5011 Fundamentals of Pharmaceutical Regulation (offered by Centre of Regulatory Excellence (CoRE), Duke-NUS Medical School)
- GMS5012 Chemistry, Manufacturing and Controls (offered by Centre of Regulatory Excellence (CoRE), Duke-NUS Medical School)

For more information, please refer to “Programme Structure” at http://pharmacy.nus.edu.sg/msc-pharmaceutical-sciences-technology/

Graduation Requirements
To graduate with the degree in Master of Science (Pharmaceutical Science and Technology), candidates must have achieved a CAP of at least 3.00.