

School of Design & Environment

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1 School's Commitment

The School of Design and Environment is known for its strong education, research and service in Singapore's built environment. This reputation is based on its long history of the creation and impartation of knowledge, fostering of innovation and enterprise in Architecture, Industrial and Urban Design, Building and Real Estate.

The School comprises three departments: Architecture, Building, Real Estate, and one division: Industrial Design.

The Division of Research and Graduate Studies spearheads graduate research and teaching programmes and promotes inter and multidisciplinary research among the various disciplines of the built environment.

Degree programmes in building and estate management were first offered in 1969 in the then Department of Building and Estate Management. This was subsequently changed to the School of Building and Real Estate. In June 2000, the Faculty of Architecture, Building and Real Estate changed its name to the School of Design & Environment. As a result of this change, Building and Real Estate were established as separate departments.

The Industrial Design degree programme was first offered in 1999 in the Department of Architecture. Since June 2010, the programme has been independent and established as a separate division.

Mission

The Department of Architecture aims to nurture creative global designers and critical thinkers for the Built Environment to shape Asia's future and the world.

The mission of the Department of Building is to advance knowledge, educate students, and foster enterprise in project and facilities management.

The Department of Real Estate aims to develop leaders and advance knowledge for the global real estate industry.

The Division of Industrial Design aims to make life better through design by equipping students with trans-disciplinary skills and thinking processes required to find unmet needs, and to solve the complex problems involved in creating viable new products, experiences, interfaces and environments.

2 Key Contact Information

For up-to-date information, please refer to the School's website at: <http://www.sde.nus.edu.sg>

TITLE & NAME	DESIGNATION/RESPONSIBILITY	TELEPHONE (6516-XXXX)	EMAIL (XXXX@NULLNUS.EDU.SG)
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Assoc Prof Erik Gerard L'Heureux	Vice Dean (Special Projects)	3477	akierik
Prof HO Puay Peng	Head, Dept. of Architecture	3452	akihead
Prof Willie TAN	Head, Dept. of Building	3487 / 3413	bdgtanw
Assoc Prof YU Shi Ming	Head, Dept. of Real Estate	3469	rsthead
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UNDERGRADUATE COURSEWORK			
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Assoc Prof LIM Pin	Programme Director, MSc (Project Management)	7117	bdglp
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MASTER / PHD BY RESEARCH			
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3 Undergraduate Education

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3.1 Degrees Offered

There are four undergraduate programmes in the School of Design and Environment available on a full-time basis, leading to the degrees of:

- Bachelor of Arts (Architecture) (Hons)
- Bachelor of Arts (Industrial Design) (Hons)
- Bachelor of Science (Project & Facilities Management) (Hons)
- Bachelor of Science (Real Estate) (Hons)

3.2 Degree Requirements

3.2.1 [BA \(Architecture\) \(Hons\) Programme](#)

3.2.2 [BA \(Industrial Design\) \(Hons\) Programme](#)

3.2.3 [BSc \(Project & Facilities Management\) \(Hons\) Programme](#)

3.2.4 [BSc \(Real Estate\) \(Hons\) Programme](#)

3.2.1 BA (Architecture) (Hons) Programme

The BA (Arch) is a four-year honours degree programme that comprises a general programme and three other design-focused tracks - 1) Design, 2) Landscape Architecture (LA) and 3) Urban Planning (UP). The curriculum content for the first three years is common to the general as well as the design-focused tracks.

The general programme terminates at the BA (Arch) degree whereas the design-focused tracks are concurrent with the Master of Architecture (M (Arch)), Master of Landscape Architecture (M (LA)) or Master of Urban Planning (MUP) degree programmes. Only students who have achieved creditable grades in design, i.e. at least a B or B- in design at the third year (depending on the track of study) will be permitted to opt for a design focused tracks.

Students who are not eligible for the design focused tracks will continue in the general programme in their fourth year of study, leading to BA (Arch). Under this programme, students will no longer be required to take the design modules at fourth year. In its place, students will take elective modules with options to focus on Design Computing, Architectural & Urban Heritage or Urban Studies. Students who graduate with a high CAP in the general programme would continue to have the opportunity to pursue other graduate programmes.

Career Opportunities and Professional Registration

Graduates with a BA (Arch) degree who have completed Advanced Architectural Studies on Design Computing, Architectural & Urban Heritage or Urban Studies could work within these areas in architectural practices, government agencies or in research.

Graduates would also have opportunities to work in related fields including and not limited to interior design, industrial design, industrialised building systems, graphic design, commercial art and architectural journalism. Graduates who complete the Landscape Architecture (LA) or Urban Planning (UP) specialisation may also work in fields related to their specialisation.

The BA (Arch) degree does not in itself qualify graduates for registration with the Board of Architects. In order to eventually register as an architect with the Board of Architects, Singapore, BA (Arch) graduates must complete the M (Arch) degree and serve a minimum of two years of practical experience in an architectural practice to be eligible for the Professional Practice Examination conducted by the Board of Architects, Singapore. Those who pass the examination are then eligible to apply for registration as architects in Singapore.

TABLE 1: CURRICULUM STRUCTURE OF THE FOUR-YEAR BA (ARCH) PROGRAMME

NO.	MODULES	MCS
1	University Requirements	20
a	General Education Modules (GEM)	20
2	Programme Requirements	108
a	Essential modules taken within the Department	108
3	Unrestricted Electives (UE)¹	32
	Total	160

¹ Requisite modules taken to be considered for admission to the Masters programmes can be used to fulfil the UE requirements

Design-Focused Tracks

Students who have achieved creditable grades (B or B-, depending on the track of study) in design at the third year will be permitted to opt for the design-focused tracks.

The Design track will lead to the M Arch degree programme. The Design track offers students the opportunity to focus on design ideas, innovation and conceptualisation from a theoretical framework.

Students who obtained at least B average in design at third year level are eligible to be considered for Urban Planning track. The UP track allows students to proceed to the Master of Urban Planning programme subjected to fulfilment of the admission requirement.

The Landscape Architecture track enables students to migrate to the Masters in Landscape Architecture (MLA) programme. The LA modules will be offered at the third and fourth year. Students who have opted for the LA track after completion of second year but fail to achieve B- for design modules at third year will pursue the general degree programme.

Progression for the Architecture Concurrent Degree Programme

The admission requirements for various tracks of the M (Arch), M (LA) and M (UP) programmes are summarized in Table 2.

Students will receive both BA (Arch) (Hons) /BA (Arch) (depending on his/her CAP) and M (Arch)/M (LA)/M (UP) degrees concurrently upon completing the Masters programme.

TABLE 2: SUMMARY OF THE ARCHITECTURE CONCURRENT DEGREE PROGRAMME

Level 5 (Masters)	Master of Architecture with specialisation in Urban Design	Master of Landscape Architecture	Master of Urban Planning	Master of Arts (Architecture) or Other NUS Graduate Programmes
Admission Criteria to Level 5	<ul style="list-style-type: none"> - Min C grade for AR5801 & AR5802 - Min CAP of 2.50 - Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> - Min B+ average for AR5801 and AR5802 - Min CAP of 2.50 - Portfolio Review and Interview for all students who wish to read UD specialisation 	<ul style="list-style-type: none"> - Min B- average for LA4701 & LA4702 - Min CAP of 2.50 - Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> - Min CAP of 3.00 for MUP modules
Level 4 BA (Arch) / BA (Arch) Hons	Design Track	Landscape Architecture Track	Urban Planning Track	General Programme
Eligibility Criteria to proceed with Level 4	<ul style="list-style-type: none"> - Min B average for AR3101/AR3101a & AR3102/AR3102a - Min B for AR3102/AR3102a - Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> - Min B- average for AR3101a & AR3102a - Min B- for AR3102a - or taken at least one of the modules attaining min B-grade - Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> - Min B average for AR3101/a and AR3102/a - Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> - Min C grade for AR3101/AR3101a & AR3102/AR3102a
Level 3	Common programme			
Level 2	Common programme			
Level 1	Common programme			

Listing of Modules

The four-year BA (Arch) programme is structured as follows:

TABLE 3: BA (ARCH) CURRICULUM - GENERAL PROGRAMME

LEVEL 1			LEVEL 2		LEVEL 3		LEVEL 4	
	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Design	AR1101 Design 1 (8 MCs)	AR1102 Design 2 (8 MCs)	AR2101 Design 3 (8 MCs)	AR2102 Design 4 (8 MCs)	AR3101 Design 5 (8 MCs)	AR3102 Design 6 (8 MCs)	Level 4000 & Above Arch Related Elective (in lieu of Design) (8 MC)	Level 4000 & Above Arch Related Elective (in lieu of Design) (8 MC)
History Theory	AR2224 Ideas & Approaches in Design (4 MC)	AR2222 History and Theory of Western Arch (4 MC)	AR2221 History and Theory of SEA Arch (4 MC)					
Urban & Landscape					AR3223 Introduction to Urbanism (4 MC)		AR4221 Urban Design Theory and Praxis (4 MC)	
Tech Environment		AR1327 Structural Principles(4 MC)		AR2524 Spatial Computational Thinking (4 MC)				
		AR1328 The Tropical Envelope (4 MC)	AR2327 Architecture, Structure and Construction (4 MC)	AR2723 Strategies for Sustainable Arch (4 MC)		AR3721 Environmental Systems and Construction(4 MC)		
General Education Modules (GEM) - 20 MCs Unrestricted Electives (within/outside SDE) (UE) - 32 MCs								

TABLE 4: BA (ARCH) CURRICULUM - DESIGN TRACK

		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Design		AR1101 Design 1(8 MC)	AR1102 Design 2(8 MC)	AR2101 Design 3(8 MC)	AR2102 Design 4(8 MC)	AR3101 Design 5(8 MC)	AR3102 Design 6(8 MC)	AR5801 Options Design Research Studio 1 (8 MC)	AR5802 Options Design Research Studio 2 (8 MC)
History Theory		AR2224 Ideas & Approaches in Design (4 MC)	AR2222 History and Theory of Western Arch (4 MC)	AR2221 History and Theory of SEA Arch (4 MC)				Arch Elective [#] (4 MC)	
Urban & Landscape						AR3223 Introduction to Urbanism (4 MC)		AR4221 Urban Design Theory and Praxis (4 MC)	
Tech Environment		AR1327 Structural Principles (4 MC)		AR2524 Spatial Computational Thinking (4 MC)				AR5321 Advanced Architectural Integration [#] (4 MC)	
		AR1328 The Tropical Envelope (4 MC)	AR2327 Architecture, Structure and Construction (4 MC)	AR2723 Strategies for Sustainable Arch (4 MC)		AR3721 Environmental Systems and Construction (4 MC)		Arch Elective [#] (4 MC)	
Management									AR5423 Architectural Practice [#] (4 MC)
General Education Modules (GEM) - 20 MCs									
Unrestricted Electives (within/outside SDE) (UE) - 32 MCs									

[#]Requisite modules to be considered for admission to the M.Arch programme. These modules can count towards UE requirements

*Additional UEs students have to complete on their own if they are taking the requisite modules listed under # otherwise full 32 MCs of UEs will apply.

TABLE 5: BA (ARCH) -LANDSCAPE ARCHITECTURE TRACK

		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Design		AR1101 Design 1 (8 MC)	AR1102 Design 2 (8 MC)	AR2101 Design 3 (8 MC)	AR2102 Design 4 (8 MC)	AR3101a Design 5 (LA Emphasis) + (8 MC)	AR3102a Design 6 (LA Emphasis) [#] (8 MC)	LA4701 MLA Studio: City (8 MC)	LA4702
History Theory		AR2224 Ideas & Approaches in Design (4 MC)	AR2222 History and Theory of Western Arch Arch (4 MC)	AR2221 History and Theory of SEA					
Urban & Landscape					LA4203 History and Theory of Landscape Arch (4 MC)	LA4212 Tropical Plant Identification [#] (4 MC)	LA4301 Material and Design [#] (4 MC)	LA4202 Planting Design [#] (4 MC)	
					AR3223 Introduction to Urbanism (4 MC)		LA5301 Geo Design [#] (4 MC)	LA5302 Detail Design [#] (4 MC)	
Tech Environment		AR1327 Structural Principles (4 MC)		AR2524 Spatial Computational Thinking (4 MC)					
		AR1328 The Tropical Envelope (4 MC)	AR2327 Architecture, Structure and Construction (4 MC)	AR2723 Strategies for Sustainable Arch (4 MC)		AR3721 Environmental Systems and Construction (4 MC)			
General Education Modules (GEM) - 20 MCs Unrestricted Electives (within/outside SDE) (UE) - 12 MCs*									

⁺ Students have to take at least one of the modules (AR3101a or AR3102a) to be considered for LA specialisation in fourth year.

[#]Requisite modules to be considered for admission to the M.LA programme. These modules can count towards UE requirements

*Additional UEs students have to complete on their own if they are taking the requisite modules listed under [#] otherwise full 32 MCs of UEs will apply.

TABLE 6: BA (ARCH) CURRICULUM -URBAN PLANNING TRACK

	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Design	AR1101 Design 1 (8 MC)	AR1102 Design 2 (8 MC)	AR2101 Design 3 (8 MC)	AR2102 Design 4 (8 MC)	AR3101 Design 5 (8 MC)	AR3102 Design 6 (8 MC)	DEP5101 Urban Analysis Workshop & DEP5101A Qualitative Methods for Urban Planning (8 MCs)	DEP5103 Urban Planning Studio & DEP5103A Quantitative Methods for Urban Planning (8 MCs)
History Theory	AR2224 Ideas & Approaches in Design (4 MC)	AR2222 History and Theory of Western Arch (4 MC)	AR2221 History and Theory of SEA Arch (4 MC)					

Urban & Landscape						DEP5104 Urban & Regional Economics (4 MCs) #	DEP5102 Urban Planning History & Theory (4 MCs)
						UD5521 Planning Process (4 MCs) #	MUP Elective 2 (4 MCs) #
				AR3223 Introduction to Urbanism (4 MC)		MUP Elective 1 (4 MCs) #	MUP Elective 3 (4 MCs) #
Tech		AR1327 Structural Principles (4 MC)		AR2524 Spatial Computational Thinking (4 MC)			
		AR1328 The Tropical Envelope (4 MC)	AR2327 Architecture, Structure and Construction (4 MC)	AR2723 Strategies for Sustainable Arch (4 MC)		AR3721 Environmental Systems and Construction (4 MC)	
General Education Modules (GEM) - 20 MCs Unrestricted Electives (within/outside SDE) (UE) - 12 MCs*							

*Requisite modules to be considered for admission to the M.UP programme. These modules can count towards UE requirements

*Additional UEs students have to complete on their own if they are taking the requisite modules listed under # otherwise full 32 MCs of UEs will apply.

Teaching Approach

Design modules are taught through design studios. Critique sessions will form part of the studio procedure in teaching. Lecture modules include formal lectures, followed by seminars/tutorials. Field trips, site visits, measurement and study of buildings for research, investigation and documentation may be involved.

Assessment and Examination

Assessment criteria will vary according to subject content. In the Department of Architecture, design modules are assessed by 100% “continuous assessment” (CA). The other essential modules may also be assessed by 100% CA or a combination of CA and Examination.

Students who fail an essential module will retake the module when it is next offered and must sit for the examination in that Semester. A retake module refers to a module where students have to attend lectures and tutorials and complete assignments and examinations. A new CA grade has to be obtained.

Students who fail a GEM/UE module may either replace it with a new GEM/UE module or retake the failed module the following year. There is no limit to the number of times a student may retake the same GEM/UE module.

A student who has passed the examination of a module will not be permitted to retake the same module for the purpose of improving his/her grade. This condition does not apply to the Design modules where the prerequisite for progression to the next level is a “C” or “S” grade. Students who achieve a “D” or “U” grade will be required to retake the Design module.

Progression of Students

Please see the table below:

Minimum MCs (in general) for promotion to the next level	ARK1 -> ARK2 [$>=40$ MC] ARK2 -> ARK3 [$>=80$ MC] ARK3 -> ARK4 [$>=120$ MC]
Additional requirements	Must pass Design with a minimum “C” or “S”** grade ** Applicable to AR1101/ AR1102 if students declare S/U for the module(s) under the S/U policy (for 2016/17 cohort onwards)

Graduation Requirements for four-year BA (Arch) Programme

Students are required to take all essential modules offered in the semester to which they have progressed, provided they have passed the relevant prerequisites. In addition, they may take modules to satisfy University and other requirements.

Minimum Graduating criteria for

- BA (Arch) Hons: Minimum Grade C for Design and CAP 3.00
- BA (Arch): Minimum Grade C for Design and CAP 2.00

Students who exit the concurrent degree programme at the end of BA (Arch) Year 4 and consequently seek admission to M (Arch), M (LA) or M (UP) would be required to fulfil a minimum CAP of 3.50 and other criteria governing admission as determined at the point of application.

Advanced Placement Credits

Polytechnic diploma holders admitted to the programme may be granted advanced placement credits (APCs) for relevant modules. This is subject to Departmental consideration, given the wide range of subject modules from the polytechnics.

For up-to-date APCs list, please refer to:

http://www.sde.nus.edu.sg/acad/download/SDE_APC.pdf

3.2.2 BA (Industrial Design) (Hons) Programme

The BA (ID) programme at NUS was first offered in 1999 with support from the Faculty of Engineering and School of Business.

The Bachelor of Arts in Industrial Design, BA (ID), is a four-year undergraduate honours programme, consisting of courses crafted with our synergistic three-pronged approach:

1. Design Thinking: Out-of-box innovation strategies and investigative methods to discover new ideas and unmet needs.
2. Multi-Disciplinary Aptitudes: Behavioral sciences, social economics, business strategy, engineering and technology knowledge develop entrepreneurial strategic thinking and holistic problem-solving.
3. Artistic Sensibility: Training of imagination, taste, and craft-like ability to give pleasing and appropriate aesthetics and emotion to ideas, through traditional and 2D/3D digital means, so that solutions are both functional and desirable.

The combined approaches equip our graduates with high-level strategic thinking, and enable them to translate problems and ideas to tangible, desirable solutions, i.e. meaningful products, environments and experiences that people love to have, love to use – and those which have a big impact on lives.

As part of our strategy to be thought leaders in industry, a major component of the course is a series of industry-sponsored ‘vertical studio platforms’. These are project teams comprising a mix of year 2 to year 4 students, encouraging cross-pollination of thoughts, skills and learning.

In these platforms, students tackle both conceptual and real-life projects led by our industry collaborators, e.g. Asus, Dell, L’Oreal, Estee Lauder, BMW Group DesignworksUSA, Tupperware, Toshiba, Osim, ICI, Swarovski, HansGrohe, Risis and Nakamichi.

Students may customize their individual course during the 4 years by selecting from amongst these different industry platforms – Each student will get the opportunity to be involved in 6-7 of these projects.

The programme has been proven to be effective in grooming students for the design and related industries. Apart from the success in local and international competitions and awards, recent graduates have achieved recognition in gaining scholarships for further studies as well as being placed in well-known design practices and reputable companies.

Students can also opt to do a second major in Management (Technology), offered by School of Business, in four years.

International Exposure

To broaden our students’ exposure to global challenges, two-thirds of each cohort are involved in one-

semester overseas exchange programme during their 3rd year. Students typically go to distinguished design schools in Switzerland, France, Japan, Netherlands, Finland, USA, Germany, Italy and China.

Career Opportunities

Students are educated to become expert innovators and master problem-solvers. These attributes make them highly valuable in any industry.

Graduates pursue careers as industrial designers, interaction designers, brand and packaging designers, design managers, product managers and innovation consultants. It is also possible for industrial designers to rise to corporate leadership levels in the areas of creative innovation or design. These are highly-coveted positions, such as Chief Designer, Chief Innovation Officer (CIO), etc.

Armed with design, business and technological knowledge, graduates will be well-positioned to serve in R&D companies, technology start-ups, design consultancies, service industries, marketing sectors and government agencies as well as in design education.

TABLE 1: CURRICULUM STRUCTURE OF THE BA (INDUSTRIAL DESIGN) PROGRAMME

NO.	MODULES	MCS
1	University Requirements	20
a	General Education Modules (GEM)	20
2	Programme Requirements	108
a	Essential modules taken within the Department	108
3	Unrestricted Electives (UE)	32
	Total	160

TABLE 2: BA (ID) PROGRAMME IS STRUCTURED AS FOLLOWS FOR COHORT ADMITTED IN AY2018/2019

	Level 1		Level 2		Level 3		Level 4	
	1st	2nd	3rd	4th	5th	6th	7th	8th
	Semester	Semester	Semester	Semester	Semester	Semester	Semester	Semester
General Education 5 Pillars (20MC)	□ GEQ1000 Asking Question (4MC)	□ GER1000 Quantitative Reasoning (4MC)	□ Human Cultures - 4MC □ Thinking & Expression - 4MC □ S'pore Studies - 4MC					

Industrial Design Major Requirements (108MC)	Design Lecture Modules			ID2323 Technology for Design (4MC)				
		ID1113 Modelling and Sketching for Design (4MC)	ID1322 Materials and Manufacturing for Industrial Design (4MC)		ID2116 (NEW) Computing for Design (4MC)			
		ID1223 History & Theory of Industrial Design (4MC)	ID1121 Human Centred Design (4MC)	ID2111 Computer Aided Industrial Design (4MC)			ID4121 Project Research (4MC)	
	Design Studio	ID1105 Design Fundamentals 1 (8MC)	ID1106 Design Fundamentals 2 (8MC)	ID2105 Design in Context & Sustainability (8MC)	ID2106 Design Platforms 1 (10MC)	ID3105 Design Platforms 2 (10MC)	ID3106 Design Platforms 3 (10MC)	ID4105 Design Thesis Project (12MC)
Unrestricted Electives (within/outside SDE) (UE) - 32 MCs								

TABLE 3: INDUSTRIAL DESIGN UNRESTRICTED ELECTIVES

Optional Industrial Design Electives	
Semester 1	
ID2113 Visual communication Design (4MC)	
ID3122 Innovation & Design (4MC)	
ID3123 Interaction Design (4MC)	
ID3125 Colours, Materials & Finishing (4MC)	
Semester 2	
ID2122 Ecodesign & Sustainability (4MC)	
ID2112 Digital Design & Fabrication (4MC)	
ID3124 Creative Communication & Design Argumentation (4MC)	
ID2114 Form, Material, & Making (4MC)	

Teaching Approach

Design modules are taught through design studios. Critique sessions will form part of the studio procedure in teaching. Lecture modules include formal lectures, followed by seminars/tutorials.

Assessment and Examination

Assessment criteria will vary according to the modules offered. In the Division of Industrial Design, design modules are assessed by 100% “continuous assessment” (CA). The other essential modules may also be assessed by 100% CA or a combination of CA and examination.

Students who fail an essential module will retake the module when it is next offered and must sit for the examination in that Semester. For a retaken module, students have to attend lectures and tutorials and complete assignments and examinations. A new CA grade has to be obtained.

Students who fail a GEM/SS/Breadth/UE module may either replace it with a new GEM/SS/Breadth/UE module or retake the failed module the following year. There is no limit to the number of times a student may retake the same GEM/SS/Breadth/UE module.

A student who has passed the examination of a module will not be permitted to retake the same module for the purpose of improving his/her grade.

Progression of Students

Please see the table below:

Minimum MCs (in general) for promotion to the next level	IDS1 -> IDS2 [≥ 40 MC] IDS2 -> IDS3 [≥ 80 MC] IDS3 -> IDS4 [≥ 120 MC]
--	---

Graduation Requirements for four-year BA (ID) (Hons) Programme

Students are required to take all essential modules offered in the semester to which they have progressed, provided they have passed the relevant prerequisites. In addition, they may take modules to satisfy University and other requirements. ‘Fulfilling’ Modular Credits means reading and passing the modules, which carry the Modular Credits.

Advanced Placement Credits

Polytechnic diploma holders admitted to the programme may be granted advanced placement credits

(APCs) for relevant modules. This is subject to Departmental consideration, given the wide range of subject modules from the polytechnics.

For up-to-date APCs list, please refer to: http://www.sde.nus.edu.sg/acad/download/SDE_APC.pdf

3.2.3 BSc (Project & Facilities Management) (Hons) Programme

The four-year direct honours BSc (Project & Facilities Management) programme combines management and technologically oriented subjects in a holistic and integrated manner. It is designed to develop leaders for the built environment sector.

Core areas of study

- Project Management
- Contract Management / Quantity Surveying
- Facilities Management
- Event Management

Eligible BSc (PFM) undergraduates may opt for a second major in Management (offered by NUS Business School) or in Management (Technology) (jointly offered by NUS Business School and Faculty of Engineering). Students may also opt for a Double Degree Programme or MSc (Project Management) Concurrent Degree Programme.

Polytechnic diploma holders who are granted Advanced Placement Credits (APCs) may complete the programme in 3.5 years.

TABLE 1: CURRICULUM STRUCTURE OF THE BSC (PROJECT AND FACILITIES MANAGEMENT) (HONS) PROGRAMME FOR STUDENTS ADMITTED FROM AY2018/2019

NO.	MODULES	MCS
1	UNIVERSITY REQUIREMENTS	20
1.1	General Education Modules(GEM) [^] Students will be required to read one GEM from each of the following five pillars	
a	<u>Human Cultures (GEH)</u>	4
b	Asking <u>Questions (GEQ)</u>	4
c	Quantitative <u>Reasoning (GER)</u>	4
d	<u>Singapore Studies (GES)</u>	4
e	<u>Thinking and Expression (GET)</u>	4
2	PROGRAMME REQUIREMENTS	108
a	Essential modules	56
b	Project Management modules	16 min.

NO.	MODULES	MCS
c	Facilities Management modules	16 min.
d	Technology Core	12 min.
e	*1 Dissertation or **Any 2 Programme Electives (for students who are not taking Dissertation)	8
3	UNRESTRICTED ELECTIVES (UE)	32
	Total	160

Note:

^Please refer to GEM website (<http://www.nus.edu.sg/registrar/gem/important-information-students>) for more details on the GEM requirements.

*Dissertation track (students with CAP 3.50 and above):

- 25modules (100MCs) + 1 Dissertation (8 MCs) = 26modules (108MCs)

- Minimum 20 MCs of Level 4000 modules = PF4102 (4 MCs) + PF4101 (8 MCs) + 2 other Level 4000 Programme Electives/ non-PFM modules (8 MCs)

**Non-dissertation track (students with CAP below 3.50):

- 25modules (100MCs) + 2 programme electives (8MCs) = 27modules (108MCs)

- Minimum 20 MCs of Level 4000 modules = PF4102 (4 MCs) + 4 other Level 4000 Programme Electives/ non-PFM modules (16 MCs)

TABLE 2: BSC (PROJECT AND FACILITIES MANAGEMENT) PROGRAMME STRUCTURE FOR STUDENTS ADMITTED FROM AY2018/2019 ONWARDS

	Level 1		Level 2		Level 3		Level 4	
	Sem 1	Sem 2	Sem 3	Sem 4	Sem 5	Sem 6	Sem 7	Sem 8
Essential	PF1101 Fundamentals of Project Management (4 MCs)		PF2109 Project Feasibility (4 MCs)	PF2108 Project Cost Management (4 MCs)	PF3104 Project Execution (4 MCs)		PF4102 Contract and Procurement Management (4 MCs)	
	PF1106 Introduction to Measurement (4 MCs)	PF1103 Digital Construction (4 MCs)	PF2107 Construction Technology (4 MCs)	PF2103 Measurement (Building Works) (4 MCs)				
	PF1107 Project & Facilities Management Law (4 MCs)	PF1108 Introduction to Building Performance (4 MCs)	PF2102 Structural Systems (4 MCs)	PF2110 Fundamentals of Facilities Management (4 MCs)	PF3105 Research Methods (4 MCs)		PF4101 Dissertation (optional for CAP below 3.50) (8 MCs)	

Project Management			PF2205 Project Finance (4 MCs)	PF2203 Quality and Productivity Management (4 MCs)	PF3208 Project Leadership (4 MCs)	PF3207 Project Management Law (4 MCs)	PF4209 Construction Enterprise Management (4 MCs)	PF4208 Safety and Health Management (4 MCs)
				PF3205 Advanced Measurement (4 MCs)	PF3201 Measurement (Specialist Works) (4 MCs)	PF4206 Building Information Modelling (4 MCs)	PF4203 Project Dispute Management (4 MCs)	
					PF4210 Project Studio (4 MCs)			
Facilities Management[^]				PF3307 Strategic Facilities Management (4 MCs)	PF3305 Facilities Planning and Design (4 MCs)	PF4309 Infrastructure Operations and Maintenance (4 MCs)	PF4306 REITs Facilities Management (4 MCs)	
			PF2305 Event Management (4 MCs)	PF2306 Event Management Case studies (4 MCs)	PF3301 Maintainability of Facilities (4 MCs)	PF3306 Facilities Management Law and Contracts (4 MCs)		
Technology		CS1010S Programming Methodology (4 MCs)	PF2502 Development Technology and Management (4 MCs)	PF2505 M&E Systems (4 MCs)	PF3504 Energy Management (4 MCs)	PF3502 Smart Facilities (4 MCs)	PF4501 Total Building Performance (4 MCs)	
				PF2504 Materials Technology (4 MCs)				PF4502 Green Development (4 MCs)
General Education Modules (GEM) - 20 MCs Unrestricted Electives (within/outside SDE) (UE) - 32 MCs								

Students on the BSc (Project and Facilities Management) programme can enrol in the University Scholars Programme (USP). Details on application and updates on the USP can be found at:
<http://www.usp.nus.edu.sg>

Students who have not passed or been exempted from the Qualifying English Test at the time of admission to the University must take additional English modules (depending on their QET results), in their first level of study. More information on this can be found on: <http://www.nus.edu.sg/celc/programmes/qet.php>

Length of Degree Programme

The programme is designed to allow students to progress at their own pace. Students who are able to progress at a faster pace can complete the programme in three-and-a-half years if they take additional foundation modules in semester two of their Second and Third Levels. Those doing the programme at a regular pace should complete it in four years.

Assessment and Examination

Students are assessed on a mixture of class work and end-of-semester examinations for each module they had registered for in the semester. Continuous Assessment (CA) may be in the form of essays, laboratory work, projects, reports, or tests. Students' performance during tutorials may be assessed as part of the CA.

Students who fail in a foundation module have to retake the foundation module the following year. For a retaken module, students have to attend lectures and tutorials and complete assignments and examinations. A new CA grade has to be obtained.

Students who fail a non-foundation module may either replace it with a new module or retake the failed module the following year. There is no limit to the number of times a student may retake the same non-foundation module.

Students who have passed any module are not allowed to retake the module to improve their grades.

Progression of Students

Please see the table below:

Minimum MCs (in general) for promotion to the next level	PFM1 -> PFM2 [≥ 40 MC] PFM2 -> PFM3 [≥ 80 MC] PFM3 -> PFM4 [≥ 120 MC]
--	---

Graduation Requirements for four-year BSc (Project and Facilities Mgt) (Hons) Programme

Students have to take all foundation modules offered in the semester to which they have progressed, provided they have passed the relevant prerequisites. In addition, they may take modules to satisfy University and other requirements. To graduate, a student must obtain a minimum of 160 MCs in accordance with the requirements shown in Table 1. 'Fulfilling' Modular Credits means reading and passing the modules which carry the Modular Credits.

Advanced Placement Credits

Polytechnic diploma holders admitted to the programme may be granted advanced placement credits (APCs) for relevant modules. This is subject to Departmental consideration, given the wide range of subject modules from the polytechnics.

For up-to-date APCs list, please refer to:

http://www.sde.nus.edu.sg/acad/download/SDE_APC.pdf

3.2.4 BSc (Real Estate) (Hons) Programme

The Department of Real Estate offers a full-time BSc (Real Estate) undergraduate programme. This is a professional honours degree programme to be completed in four years by students proceeding at a normal pace. The programme is fully recognised by renowned local and foreign professional institutions.

Student may opt to complete a specialisation in real estate finance by completing 24 MCs of distinctive programme elective modules.

Career Opportunities

Students in this programme should be interested in the built environment covering issues from planning, development, management, and the social, economic, political to technical facets of the built environment. In Singapore, career opportunities for Real Estate graduates are found in both public and private sectors. Graduates are employed in the fields of real estate fund management (including REITs), real estate development and investment, urban planning, property valuation and corporate real estate management.

TABLE 1: CURRICULUM STRUCTURE OF THE BSC (REAL ESTATE) (HONS) PROGRAMME

NO.	MODULES	MCS
1	University Requirements	20
a	General Education Modules (GEM)	20
2	Programme Requirements	108
a	Essential modules taught by the Department of Real Estate	76
b	Essential modules taught by other Departments	4
c	FYP Dissertation OR FYP Academic Exercise plus programme elective	8
d	Programme elective modules	20
3	Unrestricted Electives (UE)	32
	Total	160

Programme Structure

The programme is structured into three core areas of study as listed below:

Core Areas

1. Real Estate Finance and Investment:
 - Real Estate Financing and Securitisation
 - Real Estate Investment and Asset Management
 - Real Estate Portfolio and Risk Management
 - International Real Estate
2. Real Estate Business and Development:
 - Property Development and Law
 - Real Estate Valuation
 - Real Estate Business Development
 - Real Estate Consultancy
 - Real Estate Marketing and Management
3. Strategic Planning & Urban Policy:
 - Planning Theories and Techniques
 - Public Policies and Real Estate Markets
 - Sustainable Development
 - Town Planning

TABLE 2: BSC (REAL ESTATE) PROGRAMME STRUCTURE

Level 1		Level 2		Level 3		Level 4	
Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
RE1701 Urban Land Use and Development	RE1704 Principles of Real Estate Economics	ES2007D Professional Communication	RE2704 Introduction to Real Estate Valuation	RE3701 Real Estate Investment Analysis	RE3703 Advanced Real Estate Economics	RE4711 FYP Dissertation (8MC) OR RE4712 FYP Academic Exercise (4 MC) + 1 PE	
RE1702 Real Estate Data Analytics	RE1705 Real Estate Finance and Accounting	RE2701 Urban Planning	RE2705 Urban Economics	RE3702 Property Tax and Statutory Valuation	RE3704 Real Estate Marketing	RE4701 Real Estate Development	PE4
RE1703 Principles of Law for Real Estate	RE1706 Design and Construction	RE2702 Land Law	RE2706 Real Estate Finance	PE1	PE2	RE4702 Professional Practice and Ethics	PE5
GE	GER1000	RE2708 Computational Thinking and Programming for Real Estate	RE2707 Asset and Property Management	UE2	UE4	PE3	UE7
GE	GE	GE	UE1	UE3	UE5	UE6	UE8

Students who have not passed the Qualifying English Test at the time of admission to the University must take an additional module in English in Level One. Students who are exempted from the Qualifying English Test need not do an additional module in English.

Students admitted can undertake one of the 2 academic routes:

- BSc (Real Estate)
- BSc (Real Estate) with Specialisation in Real Estate Finance

A specialisation will be awarded if a student completes a basket of 24 MCs (6 modules) of stipulated Programme Electives. The specialisation will be noted in a student's transcript. It is not compulsory for students to pursue a specialisation.

A student may opt to complete a specialisation in real estate finance after they have completed the fourth semester.

TABLE 3: REAL ESTATE FINANCE SPECIALISATION PROGRAMME ELECTIVES

Module Code	Real Estate Finance Specialisation (REFS) Programme Electives	Pre-Requisites
RE3802	Real Estate Finance Law	RE2702
RE3805	Corporate Investment in Real Estate	RE3701
RE4711	FYP Dissertation (8MC)*	Nil
RE4712	FYP Academic Exercise (4MC)*	Nil
RE4801	Real Estate Internship Programme*	Nil
RE4803	REIT Management	RE3701
RE4804	Real Estate Securitisation	RE3701
RE4806	Real Estate Finance Seminar	RE3701
RE4807	Real Estate Risk Analysis and Management	RE3701

*For RE4711 FYP Dissertation, RE4712 FYP Academic Exercise and RE4801 Real Estate Internship Programme to be counted as fulfillment towards the REFS, it must be Finance Related and approved by the Department. If RE4711 is accepted, student must still complete another 5 modules from the REFS programme electives.

Students who are not completing the real estate specialisation are required to complete 20 MCs of programme electives in any combination (except RE4806 Real Estate Finance Seminar). In addition to the 20 MCs, students are still required to complete either RE4711 FYP Dissertation or RE4712 FYP Academic Exercise.

TABLE 4: OTHER PROGRAMME ELECTIVES

Module Code	Other Programme Electives	Pre-Requisites
RE3803	Strategic Asset Management	RE2702
RE3804	Real Estate Development Law	RE2702
RE3806	Advanced Real Estate Valuation	RE3702
RE3807	Corporate Finance for Real Estate	RE3701
RE4802	Topics in Real Estate (Summer Programme)	Year 2 Modules
RE4805	International Real Estate Development and Investment	RE4701
RE4808	Urban Challenges and Policies	RE2701, RE3703

TABLE 5: REAL ESTATE UNRESTRICTED ELECTIVES

Module Code	Real Estate Unrestricted Electives	Pre-Requisites
RE1901	Real Estate Wealth Management	Nil
RE3000	Work Experience Internship	At least 60 MCs and have not accumulated 12 MCs of Internship credits
RE3901	Advanced Urban Planning	RE2701
RE3903	GIS for Real Estate	Nil
RE3902	Housing Markets and Policies	Nil

Concurrent Degree Programme: BSc (Real Estate) + Master of Urban Planning

BSc (RE) students who are interested in Urban Planning (UP) can also choose to pursue the M (UP) concurrently. After a 5-year candidature, they will get 2 degrees:

- BSc (RE) with a specialisation in UP
- M (UP)

Eligibility Criteria

At the end of the third year in the BSc (Real Estate) course, applicants must obtain a CAP of at least 3.50. Applicants will be subjected to an interview for discretionary admission.

Continuation Criteria at the end of the fourth year

At the end of the fourth year, the candidate of the CDP must have completed RE4711 FYP Dissertation, and also obtain a minimum CAP of 3.00 (for MUP modules only).

Graduating criteria at the end of the 5th year, include a minimum CAP of 3.00 (for MUP modules taken in Year 4 and Year 5).

Student Workload

In any one semester, students are not allowed to take more than 8 modules (excluding English), whether essentials, electives, or GE modules.

Length of Degree Programme

The programme is designed to allow students to progress at their own pace. Students doing the programme at a regular pace should complete it in four years. Students who are able to progress at a faster pace can complete the programme in three-and-a-half years if they take additional modules in each of the four semesters in their Second and Third Levels.

Assessment and Examination

Students are assessed based on a mixture of class work and end-of-semester examinations for each module they had registered for in the semester. Continuous Assessment (CA) may be in the form of essays, projects, reports, or tests. Students' performance during tutorials may be assessed as part of the CA.

Students who fail in an essential module will have to retake the module the following year. In such instances, students have to attend lectures and tutorials and complete assignments and examinations. A new CA grade has to be obtained.

Students who fail a non-essential module may either replace it with a new module or retake the failed module the following year. There is no limit to the number of times a student may retake the same non-essential module.

Students who have passed any module are not allowed to retake the module to improve their grades.

Progression of Students

Please see the table below:

Minimum MCs (in general) for promotion to the next level	RST1 -> RST2 [$>=40$ MC] RST2 -> RST3 [$>=80$ MC] RST3 -> RST4 [$>=120$ MC]
--	--

Graduation Requirements for four-year BSc (Real Estate) (Hons) Programme

Students have to take all essential modules offered in the semester to which they have progressed, provided they have passed the relevant prerequisites. In addition, they may take modules to satisfy University and other requirements. To graduate, a student must obtain a minimum of 160 MCs.

Advanced Placement Credits

Polytechnic diploma holders admitted to the programme may be granted advanced placement credits (APCs) for relevant modules. This is subject to Departmental consideration, given the wide range of subject modules from the polytechnics.

For up-to-date APCs list, please refer to:

http://www.sde.nus.edu.sg/acad/download/SDE_APC.pdf

3.3 Multidisciplinary Opportunities

3.3.1 Minor Programmes

3.3.1 Minor Programmes

3.3.1.1 [Minor in Project Management](#)

3.3.1.2 [Minor in Real Estate](#)

3.3.1.3 [Minor in Urban Studies](#)

3.3.1.1 Minor in Project Management

Curriculum

The MC requirement for the Minor Programme in Project Management is 24 MCs. To satisfy this requirement, students must read outside their major, the following modules offered by the Department of Building.

One compulsory module:

- PF1101 Fundamentals of Project Management

Any five elective modules from the following:

- PF2108 Project Cost Management
- PF2201 Scope and Design Management
- PF2203 Quality and Productivity Management
- PF2204 Project Development and Finance
- PF3206 Project Scheduling and Control
- PF4203 Project Dispute Management
- PF4207 Project Risk Management

There is a proposal to expand the set of elective modules. Students who opt for the Minor will be informed in due course.

3.3.1.2 Minor in Real Estate

Curriculum

The requirement for the Minor Programme in Real Estate is 24 MCs. To satisfy this requirement, students must read outside their major, the following modules offered by the Department of Real Estate. All modules are worth 4 MCs.

Students will read 2 compulsory foundation modules - RE1701 Urban Land Use & Development and RE1705 Real Estate Finance & Accounting. The remaining 16 MCs can be a combination of modules from Level 1000 to Level 3000. These are listed in Table 1.

In addition, students can only read a maximum of 12 MCs of Level 1000 modules (including the compulsory modules).

Table 1: Structure of Minor in Real Estate

Level	Module Code	Module Name
Level 1000	RE1701	Urban Land Use and Development (Compulsory)
	RE1702	Real Estate Data Analytics
	RE1703	Principles of Law for Real Estate
	RE1704	Principles of Real Estate Economics
	RE1705	Real Estate Finance and Accounting (Compulsory)
	RE1706	Design and Construction
	RE1901	Real Estate Wealth Management
	<i>Maximum of Three Level 1000 Modules</i>	

Level	Module Code	Module Name
Level 2000	RE2701	Urban Planning (<i>pre-req: RE1701</i>)
	RE2702	Land Law (<i>pre-req: RE1703</i>)
	RE2704	Introduction to Real Estate Valuation
	RE2705	Urban Economics (<i>pre-req: RE1704</i>)
	RE2706	Real Estate Finance (<i>pre-req: RE1705</i>)
	RE2707	Asset and Property Management (<i>pre-req: RE1706</i>)
	<i>Fulfillment of the pre-requisite modules is needed</i>	
Level 3000	RE3701	Real Estate Investment Analysis (<i>pre-req: RE2706</i>)
	RE3702	Property Tax and Statutory Valuation (<i>pre-req: RE2704</i>)
	RE3703	Advanced Real Estate Economics (<i>pre-req: RE2705</i>)
	RE3704	Real Estate Marketing
	RE3802	Real Estate Finance Law (<i>pre-req: RE2702</i>)
	RE3803	Strategic Asset Management (<i>pre-req: RE2707</i>)
	RE3804	Real Estate Development Law (<i>pre-req: RE2702</i>)
	RE3805	Corporate Investment in Real Estate (<i>pre-req: RE3701</i>)
	RE3806	Advanced Real Estate Valuation (<i>pre-req: RE3702</i>)
	RE3807	Corporate Finance for Real Estate (<i>pre-req: RE3701</i>)
	RE3901	Advanced Urban Planning (<i>pre-req: RE2701</i>)
	RE3902	Housing Markets and Policies
	RE3903	GIS for Real Estate
	<i>Fulfillment of the pre-requisite modules is needed</i>	

For more details of modules offered in the respective semester, please email Mdm Srividya at rstssn@nullnus.edu.sg or call 65161341.

3.3.1.3 Minor in Urban Studies

Curriculum

This Minor offered jointly by the Department of Real Estate and Department of Geography is open to all students. The requirement for the Minor Programme in Urban Studies is 24 MCs. To satisfy this requirement, students must read a minimum of six modules (three or four Core Modules, and three or two Elective Modules respectively) from the lists below. At least four modules required for the Urban Studies Minor must be taken outside the student's own department and at least two modules must be from level-3000. All modules are worth 4 MCs.

Programme Requirements

Pass at least 24 MCs of modules, which include the following:

1. a minimum of 12 MCs from the Core modules, with
 - a. a minimum of 4 MCs from RE-prefixed modules
 - b. a minimum of 4 MCs from GE-prefixed modules
2. a minimum of 8 MCs of Elective modules
3. a minimum of 8 MCs at Level-3000 or higher

Note 1:

A minimum of 16 MCs must be modules taken outside the department(s) of the student's major(s).

Note 2:

A maximum of 8 MCs from the minor can be used to satisfy the requirements of a major or another minor.

Core Modules	
RE-prefixed Modules	
RE1701	Urban Land Use and Development
RE1705	Real Estate Finance and Accounting
RE1706	Design and Construction

GE-prefixed Modules	
GE2204	Cities in Transition
GE3204	Cities and Regions: Planning for Change
Elective Modules	
AR2223	Theory of Urban Design and Planning
EC3381	Urban Economics
EC3382	Transport Economics I
GE2202	Economy and Space
GE3219	Globalisation and the Asian Cities
GE3236	Transport and Communications
GE3241	Geographies of Social Life
RE2701	Urban Planning (pre-req: RE1701)
RE2706	Real Estate Finance (pre-req: RE1705)
RE3701	Real Estate Investment Analysis (pre-req: RE2706)
RE3902	Housing Markets and Policies
SC3206	Urban Sociology

For the latest updates, please visit the Minor in Urban Studies website
 at: <http://www.fas.nus.edu.sg/geog> or <http://www.rst.nus.edu.sg>

3.4 Special Programmes

3.4.1 [Student Exchange Programme \[SEP\] and NUS Overseas Colleges \[NOC\]](#)

3.4.2 [Internship Programmes](#)

3.4.3 [Topics in Real Estate \(Summer Programme\)](#)

3.4.1 Student Exchange Programme and NUS Overseas Colleges

Under the Student Exchange Programme, students can spend up to one semester in approved overseas Universities offering similar modules. These modules could be counted towards the fulfilment of the student's graduation requirements. Up to one academic year's absence may be allowed for students joining the NUS Overseas College programme.

School of Design & Environment

(<http://www.nus.edu.sg/nusbulletin/school-of-design-and-environment/>)

3.4.2 Internship Programmes

📍 Home (<http://www.nus.edu.sg/nusbulletin>) / NUS Bulletin AY2018/19 / School of Design & Environment (<http://www.nus.edu.sg/nusbulletin/school-of-design-and-environment>) / Undergraduate Education (<http://www.nus.edu.sg/nusbulletin/school-of-design-and-environment/undergraduate-education>) / Special Programmes (<http://www.nus.edu.sg/nusbulletin/school-of-design-and-environment/undergraduate-education/special-programmes>) / Internship Programmes

The credit-bearing internship programmes offered by the Departments within SDE are listed below.

For updated information, please visit SDE's internship page (http://sde.nus.edu.sg/acad/SDE_internship.html). For a list of other internship opportunities, please visit Centre for Future-ready Graduates (CFG)'s internship page (<http://nus.edu.sg/cfg/students/internships>).

Architecture Internship Programme – Department of Architecture

The internship programme aims to provide opportunities for third year undergraduates to work in architectural or allied firms or organisations with design centric focus to gain the exposure and experience and apply the knowledge learnt in school in the professional setting.

Students are required to perform a structured and supervised internship in a company/organization for a minimum of 8 weeks during Special Terms or 24 weeks during the regular Semester. Weekly logbook as well as internship reports will be used a part of the evaluation of their internship experience.

Practical Training Scheme – Department of Building

BSc (Project and Facilities Management) students may undertake a twelve-week-long Practical Training Scheme which is normally held at the end of the second semester in the Third Level. The aim of this scheme is to give students essential real-life work exposure in Singapore or abroad. The Department finds suitable placements with an organisation in the construction or real estate industry for students, and their work is supervised by a staff member of the Department, and a senior person within the organisation to which they are attached.

The module will contribute 4 MCs and a CS/CU grade is awarded.

Real Estate Internship Programme – Department of Real Estate

The Real Estate Internship Programme (REIP) is a partnership between industry and academia in the provision of real estate education and training. It provides opportunities during the university vacation for internship training in mainstream private property companies as well as public institutions that serve the industry.

The Department will liaise with reputable organisations that are able to provide quality training and exposure for the undergraduates. Participation in the REIP is offered to BSc (Real Estate) undergraduates after a rigorous application and selection process. The minimum duration of an internship is ten weeks.

This module will contribute 4 MCs and a CS/CU grade is awarded.

Work Experience Internship – All Departments

Undergraduate students may undertake an approved internship of at least 10 weeks in duration during the vacation period. This module is opened to full-time undergraduate students who have completed at least 60 MCs.* The module recognises that work experiences in fields that may or may not be directly related to the student's major can lead to viable career pathways.

The module will contribute 4 MCs and a CS/CU grade is awarded.

*Departments may impose additional requirements or pre-requisites.

NUS Bulletin AY2018/19

Provost's Welcome Message

Part I: General

1. About NUS (</nusbulletin/general-information#1>)
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3. Education at NUS (<http://www.nus.edu.sg/registrar/education-at-nus.html>)
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Part II: Programmes

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- B. School of Business (/nusbulletin/school-of-business/)
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- I. Faculty of Law (/nusbulletin/faculty-of-law/)
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- L. Faculty of Science (/nusbulletin/faculty-of-science/)
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Part III: Modules

Search Modules (<http://www.nus.edu.sg/nusbulletin/search-modules/>)

Part IV: Archived Bulletins

AY2017/18 (/nusbulletin/archives/ay201718/)

AY2016/17 (/nusbulletin/archives/ay201617/)

AY2015/16 (/nusbulletin/archives/ay201516/)

AY2014/15 (/nusbulletin/archives/ay201415/)

3.4.3 Topics in Real Estate (Summer Programme) - Department of Real Estate

This module is designed for third-year undergraduates to examine country-specific issues in socioeconomic, demographic and political dimensions underlying the real estate processes. Students will attend lectures and seminars in both NUS and partner universities in the country of discussion. Site visits to projects and organisations are an integral part of the module. Students will work on a project for in-depth study of selected aspects of the real estate industry in the country.

3.5 Financial Assistance and Scholarships

The School of Design and Environment's donated scholarships and bursaries are designed to offer generous financial support to our undergraduates. To be considered for the School-Level financial assistance/scholarships and selected NUS-level donated scholarships, please apply through the Office of Financial Aid (OFA) at the [Undergraduate Financial Aid portal](#) from February to April every academic year.

3.5.1 School-Level Financial Assistance/Scholarships

- K H Tan Bursary & K H Tan Scholarship
- BEMA Bursary
- SDE Travelling Loan Fund

3.5.2 Department-Level Financial Assistance/Scholarships

3.5.2.1 Department of Architecture Financial Assistance/Scholarships

- Tun Tan Cheng Lock Scholarship
- Lee Kip Lin Bursary
- Kumpulan Akitek Prize
- ONG & ONG Travelling Fellowship
- SAA EnReach Study Grant

3.5.2.2 Department of Building Financial Assistance/Scholarships

- Kong Mun Kwong Scholarship
- Woh Hup Scholarship
- HK Hauw Bursary
- Lighthouse Club (Singapore) Bursary
- Tan Chew Char Bursary

3.5.2.3 Department of Real Estate Financial Assistance/Scholarships

- IRAS Scholarship for Real Estate
- Melvin Poh and Francine Lee Real Estate Scholarship
- NH Seek Fund Scholarship
- NUS Real Estate Scholarships
- Perennial Real Estate Scholarships
- DRE Endowed Bursary
- Raffles Quay Asset Management (RQAM) Study Grant

More information on Scholarships and Financial Aid can be found at the following links:

<http://www.nus.edu.sg/oam/scholarships/currentstudent/scholarship-ug-scholar.html>

<http://www.nus.edu.sg/financialaid/>

3.5.1 School-Level Financial Assistance and Scholarships

- K H Tan Bursary & K H Tan Scholarship
- BEMA Bursary
- SDE Travelling Loan Fund

K H Tan Bursary & K H Tan Scholarship

K H Tan Bursary was established in 2011 for deserving undergraduate students at the Department of Architecture. The Donor, Mr Tan Kwang Hwee donated an expendable gift sum of \$45,000 and pledged to support financially needy full-time undergraduate students at the Department. A total of nine bursaries valued at S\$5,000 were disbursed in AY2011/12. Mr Tan has made another expendable gift for five bursaries to be disbursed in AY2012/13. Mr Tan has re-designated the K H Tan Bursary from Department of Architecture to the School of Design and Environment, making it available to all undergraduates at the School.

In January 2013, the School received from Newsman Realty Pte. Ltd., the Donor a generous pledge of an expendable gift to continue awarding 5 bursaries for next three (3) academic years, starting from AY2013/14 to AY2015/16. A new scholarship named as K H Tan Scholarship was also established. Two scholarships will be awarded to incoming and existing undergraduates of the School for three (3) academic years, starting from AY2013/14 to AY2015/16. The bursary and scholarship are tenable for one year for the academic year in which it is awarded.

BEMA Bursary

The BEMA Bursary was established in 2013 by the Building and Estate Management Alumni, NUS (BEMA), for deserving undergraduates. An expendable gift of \$100,000 was pledged to support financially needy full-time Singaporean undergraduates, especially to those whose families have experienced unexpected financial change, at the Department of Building and Real Estate.

Four bursaries, each valued at \$5,000, will be awarded per student per annum, up to 2 awards for the Department of Building and up to 2 awards for the Department of Real Estate in each academic year, starting from AY 2013/2014. The bursary is tenable for one year for the academic year in which it is awarded.

SDE Travelling Loan Fund

The Travelling Loan Fund has been set up by the School for the purpose of assisting in the payment of travelling expenses incurred by students to travel overseas during the recess/vacation in each academic year for the purpose of stimulation and broadening of outlook in the respective disciplines of architecture, building, industrial design and real estate. This loan is meant for trips organised by the Departments in the School.

3.5.2.1 Department of Architecture Financial Assistance and Scholarships

- Tun Tan Cheng Lock Scholarship
- Lee Kip Lin Bursary
- Kumpulan Akitek Prize
- ONG & ONG Travelling Fellowship
- SAA EnReach Study Grant

Tun Tan Cheng Lock Scholarship

This is a one off scholarship valued at \$4500 and is set up to support research in the area of urban and architectural heritage in Southeast Asia. The Department will provide another \$2000 per academic year for publication and exhibition of the projects. Up to 4 Scholarships will be awarded to students under the following categories each year:

1. Up to two undergraduate students in third/fourth year of study in the Department and or
2. One graduate student in the Department and/or
3. Up to two undergraduate or graduate students in accredited architectural programmes in other universities, preferably in Southeast Asia.

The basis of award corresponds to the 3 categories of students:

1. The scholarship supports the undergraduates on projects that require travelling within Southeast Asia.
2. Research project related or connected to design thesis, dissertation or similar academic exercises. The study should preferably focus on urban and architecture heritage.
3. The area of study should be related to disciplines of the built environment, such as environmental design, landscape architecture, urban and architectural heritage & management, urban studies or urban planning.

Recipients are required to put up an exhibition of their research/studies at the Tun Tan Cheng Lock Centre upon the completion of their projects.

Lee Kip Lin Bursary

The Lee Kip Lin Bursary is established by Mrs. Lee Li Ming to commemorate the life of her late husband, Associate Professor Lee Kip Lin in architectural education. Associate Professor Lee Kip Lin was an influential teacher in the Department of Architecture where he taught for five years between 1976 and 1984 and as an intrepid and independent scholar of architectural and urban history of Singapore.

2 bursaries, each valued at \$7,500 will be awarded in each academic year, starting AY2013/14. Applicants should be full-time undergraduates reading the BA (Architecture) programme and shortlisted candidates will be interviewed by the Selection Committee.

Kumpulan Akitek Prize

The top 5% of the best students in design from the second to fourth year of study in the BA (Architecture) programme will be invited to form their own team, preferably drawn from each of the three years. This is to encourage the spirit of team-work and group learning. Winners of the prize which is a one-off grant of \$10,000 must work together to develop a design-research undertaking.

Though the teams are given flexibility to explore thematic issues of the time and their interests, the following are highly encouraged:

1. Ecological Design in the Tropics
2. Cultural Continuity and Traditional Forms in the contemporary settings
3. Design for Society

ONG & ONG Travelling Fellowship

Up to 2 Travelling Fellowships will be offered to BA (Arch) Level 4 students proceeding to NUS M (Arch) studies and/or M (Arch) students from any of the Research Teaching Groups in the Department each year. The value of each award is up to \$10,000. Selection is based on the strength of proposed study & travel plan and academic excellence.

SAA EnReach Study Grant

The study grant is donated by SAA Architects (Singapore) commencing AY2015/16 with the aim of providing bursaries for financially needy Singaporean students enrolled at the Department of Architecture. The grant will be awarded to up to two students per academic year.

Each grant valued at S\$5000 per year will be effective for two academic years to support the same student throughout his/her course of study in Year 3 and 4, subject to the student meeting the criteria (if any) set by the University from time to time in its policies for the award of bursaries.

The gift will help to ensure that the Department will always be accessible to talented students from the

widest possible backgrounds.

3.5.2.2 Department of Building Financial Assistance and Scholarships

- Kong Mun Kwong Scholarship
- NUS Department of Building Scholarship
- Wee Hur Scholarship
- Woh Hup Scholarship
- HK Hauw Bursary
- Lighthouse Club (Singapore) Bursary
- Tan Chew Char Bursary

Kong Mun Kwong Scholarship

The Kong Mun Kwong Scholarship is donated by Mr Kong Mun Kwong, commencing in AY2011/12. The scholarship is awarded annually to a student who has completed at least 20 MCs and not more than 80 MCs in the BSc (Project and Facilities Management) programme. It is tenable for two years, subject to the student's progress. Applicants should attain at least a CAP of 4.0, have a strong record of CCA involvement and demonstrate a commitment to community service.

Woh Hup Scholarship

The Woh Hup Scholarship is donated by Woh Hup Pte Ltd, commencing in AY2011/12. The scholarship is awarded to a 3rd year student in the BSc (Project and Facilities Management) programme. It is tenable for two years, subject to the student's progress. The same student shall continue to receive the award in his/her 4th year of study. Applicants should attain at least a CAP of 3.5, have a strong record of CCA involvement and demonstrate a commitment to community service.

HK Hauw Bursary

The HK Hauw Bursary was established in 2014 with a donation of \$50,000. This bursary is awarded to needy undergraduate students studying Project & Facilities Management at the Department of Building, at the School of Design and Environment.

Each Bursary is valued at S\$2000.00 per student per annum and tenable for one year for the academic year in which it is awarded. The quantum of each Bursary will be subjected to the minimum bursary quantum determined by the University.

Lighthouse Club (Singapore) Bursary

The Lighthouse Club (Singapore) Bursary was established in 2009 with a donation of \$45,000. Six bursaries were to be awarded since AY2009/10 to support students studying for a Bachelor of Science (Project and Facilities Management) degree at the Department of Building. Each Bursary is tenable for the duration of the studies and valued at \$2,000.

Tan Chew Char Bursary

The Tan Chew Char Bursary was established in 2013 with a donation from Dr Freddie Tan (NUS Alumnus '96). At least four bursaries (up from two bursaries), each valued at S\$2,000, will be awarded to needy Singaporean students reading the Bachelor of Science (Project and Facilities Management) at the Department of Building in each academic year (AY), starting from AY2018/19.

Each Bursary is valued at S\$2,000.00 per student per annum and tenable for one year for the academic year in which it is awarded. The number of bursaries and quantum of each Bursary will be subjected to the sufficiency of funds and minimum bursary quantum determined by the University.

3.5.2.3 Department of Real Estate Financial Assistance and Scholarships

- IRAS Scholarship for Real Estate
- Melvin Poh and Francine Lee Real Estate Scholarship
- NH Seek Fund Scholarship
- NUS Real Estate Scholarships
- Perennial Real Estate Scholarships
- DRE Endowed Bursary
- Raffles Quay Asset Management (RQAM) Study Grant

IRAS Scholarship for Real Estate

Arising from a collaboration with Inland Revenue Authority of Singapore (IRAS), up to two (2) outstanding prospective students intending to pursue an NUS BSc (Real Estate) programme will be selected by the IRAS Senior Management for the scholarship.

The scholarship covers full sponsorship including maintenance allowance, tuition fees, pre-studies allowance, computer allowance, miscellaneous allowance and other compulsory fees. The bond period is 4 years with single or double Bachelor degree(s).

Melvin Poh and Francine Lee Real Estate Scholarship

Mr Melvin Poh and Ms Francine Lee are alumni of the former Building & Estate Management Department of NUS and have made an endowed gift in 2014 to establish a scholarship for undergraduate students at the Department of Real Estate.

The scholarship will be awarded to an outstanding A' Level or equivalent student who wish to pursue his/her undergraduate studies in BSc (Real Estate) programme.

Each scholarship is valued at \$10,000 per annum, subject to the availability of funds or spending limit available every year and is tenable for four (4) years from the academic year in which it is awarded. The scholarship holders must maintain a Cumulative Average Point (CAP) of at least 3.50 every semester and is subject to the NUS Scholarships' renewal guidelines.

NH Seek Fund Scholarship

Dr Seek Ngee Huat, an illustrious alumnus of the former Building & Estate Management Department of NUS, is well known internationally in the field of real estate. A recipient of the 2015 NUS Outstanding Service Award, he is a generous philanthropist with a heart for the less fortunate.

In 2011, he made an endowed gift for education and research in real estate to the Institute of Real Estate Studies. This led to the establishment of the NH Seek Fund for Real Estate Education and Research and subsequently in 2015, the NH Seek Fund Scholarship was set up to benefit financially needy outstanding Singaporean undergraduate students at the Department of Real Estate.

Category 1 (Mid-term)

At least one (1) candidate will be awarded in every academic year, where the scholarship is tenable for 3 consecutive academic years. The number of candidates awarded is subject to the spending limit available. Each scholarship is valued at \$7,500 per annum, with the intention for it to be awarded annually to one (1) second year student for three (3) consecutive academic years.

Category 2 (Freshmen)

At least one (1) candidate will be awarded in every academic year, where the scholarship is tenable for 4 consecutive academic years. The number of candidates awarded is subject to the spending limit available.

NUS Real Estate Scholarship

The NUS Real Estate Scholarship is made possible by the Department of Real Estate, its alumni and friends in AY2015/2016. Scholarships will be awarded to outstanding freshmen - Singaporean students who are passionate about real estate business and would like to take up the BSc (Real Estate) programme at the Department of Real Estate, School of Design and Environment (SDE).

a) Category A

The scholarship is tenable for four (4) years at \$10,000 per year. It covers tuition fees (the prevailing subsidized tuition fee) and any balance funds will cover living expenses.

The number of recipients that can be awarded will be subject to the availability of funds or spending limit available every year. No bond is required.

The scholarship holders must maintain a Cumulative Average Point (CAP) of at least 3.50 every semester and is subject to the NUS Scholarships' renewal guidelines.

b) Category B

The scholarship will be tenable for one (1) year at \$10,000. It covers tuition fees (the prevailing subsidized tuition fee) and any balance funds will cover living expenses.

The number of recipients that can be awarded will be subject to the availability of funds or spending limit available every year. No bond is required.

For both categories, the department reserves the right not to award any Scholarship in any relevant year if none of the candidates meets the criteria or the fund is insufficient to award a Scholarship.

Perennial Real Estate Holdings Scholarship

The Perennial Real Estate Holdings Scholarship is an expendable scholarship made possible by Perennial Real Estate Holdings Limited. Commencing in AY2015/2016, the scholarship is awarded to outstanding A Level or equivalent students who wish to pursue his/her undergraduate studies in BSc (Real Estate).

Each scholarship is valued at \$10,000 per annum and is tenable for 4 years from the academic year in which it is awarded. Scholarship holders must maintain a Cumulative Average Point (CAP) of at least 4.00 every semester and is subject to the NUS Scholarships' renewal guidelines. No bond is required.

DRE Endowed Bursary

The DRE Endowed Bursary was established in 2012 as a faculty-level bursary. The donation drive was organized in the form of Building and Estate Management Alumni (BEMA) Fund Raising Golf Tournament held in August 2012.

This bursary is intended for needy undergraduate students from the Department of Real Estate. Two sub-named bursaries have been set-up. They are: DRE-Ascendas Bursary; and DRE-Lim Siew Bee Bursary.

The Bursary is valued at up to S\$3,000 each, subject to the availability of funds or spending limit available every year, and is tenable only for the academic year in which it is awarded.

Raffles Quay Asset Management (RQAM) Study Grant

Raffles Quay Asset Management Pte Ltd has made a generous endowed gift to the Department of Real Estate to establish the study grant in support of financially needy BSc (Real Estate) undergraduate

students with good academic standing.

One bursary will be awarded to full-time Singaporean undergraduate undertaking the Bachelor of Science (Real Estate) programme in Year 2 and above in each academic year, starting from AY2014/2015.

Each Bursary is valued at \$7,500 per annum and is tenable for up to three years from the academic year in which it is awarded, subject to the availability of funds or spending limit available every year. Study grant holders must maintain a Cumulative Average Point (CAP) of at least 3.50 every semester and is subject to the NUS Scholarships' renewal guidelines. No bond is required.

Additional Information can be found at the following:

<http://www.rst.nus.edu.sg/undergraduate/scholarship.html>

<http://www.rst.nus.edu.sg/undergraduate/bursary.html>

3.6 Academic Awards

Medals and book prizes are awarded only once in the academic year, after the Semester 2 Examination. In all instances, a prize-winner must be of sufficient merit. He/She must have passed all modules attempted and must be a good overall student. No award will be made unless there is a candidate of sufficient merit.

In general, to be eligible for consideration for an Academic Year Award, a student must have completed a minimum workload of 40 MCs, 80 MCs and 120 MCs for the Year 1, Year 2 and Year 3 awards respectively. In addition, students must have completed at least 36 MCs of graded modules within the academic year of the award.

The exception to this ruling would be students who are involved in internships, accelerated programmes or double degree programmes. For these students, they need to have a minimum of 24 MCs graded modules. In addition, students must have also completed a minimum of 16 MCs in the subject within the academic year.

Below is a full list of the medals and prizes for SDE undergraduates :

Department	Name of Award	Course / Year of Student		Award Criteria
Dean's Office	NUS-JTC i3 Centre Innovation Medal and Prize (Built Environment)	BSc (PFM) 4/ BSc (RE) 4		Best dissertation addressing the theme of innovation in real estate markets, management of industrial facilities and technology
	NUS-JTC i3 Centre Innovation Medal and Prize (Design)	BA (Arch) 4/ BA (ID) 4		Best design project addressing the theme of innovation in the design of industrial facilities and infrastructure
Department of Architecture	Aedas Medal & Prize in Architectural Design	BA (Arch) 4		Student with highest average mark for AR4101 (Design 7) and AR4102 (Design 8)
	Architecture Alumni Fund (AAF) Prize for Distinction in Architectural Design	BA (Arch) 2		Student with highest average mark for AR2101 (Design 3) and AR2102 (Design 4)
		BA (Arch) 3		Student with highest average mark for AR3101/AR3101a (Design 5) and AR3102/AR3102a (Design 6)
	Board of Architects Prize	BA (Arch) 2		Best student in Second Exam
		BA (Arch) 3		Best student in Third Exam
	Board of Architects Prize and Medal	BA (Arch) 4 Page 1		Best student in Fourth Exam
	ICI Dulux Medal	BA (Arch) 4		Best student in Architectural Design

Department	Name of Award	Course / Year of Student		Award Criteria
		Division of Industrial Design	BA (IDS) 4	
Division of Industrial Design	Milton Tan Gold Medal	BA (IDS) 4	Highest mark for design studio module ID4105 Design Platform 4	
	Lee Kuan Yew Gold Medal	BA (IDS) 4	Best student throughout course of study	
Department of Building	BEMA Gold Medal	BSc (PFM) 4	Highest mark in PF4501 Total Building Performance	
	Eugene Seah Medal and Prize	BSc (PFM) 4	Highest CAP from PF2103 Measurement (Building Works) and PF3207 Project Management Law II	
	Arcadis Singapore Medal	BSc (PFM) 4	Highest CAP from: PF2108 Project Cost Management PF3201 Measurement (Specialist Works) PF4102 Contract and Procurement Management PF4203 Project Dispute Management	
	Lee Kuan Yew Gold Medal	BA (PFM) 4	Best student throughout the course of study	
	Rider Levett Bucknall Medal and Prize	BSc (PFM) 4	CAP of at least 4.50 for PF4102 Contract & Procurement Management and PF3205 Advanced Measurement	
	Sally Meyer Medal	BSc (PFM) 4	Highest CAP from PF4101 Dissertation and any two level 4 PF modules	
	SCAL Gold Medal	BSc (PFM) 4	Highest CAP in PF4101 Dissertation and essential modules PF2501 Structural Systems and PF3206 Project Scheduling & Control	
	Singapore Institute of Building Gold Medal	BSc (PFM) 4	Highest mark in PF4101 Dissertation	
	SISV Gold Medal	BSc (PFM) 4	Highest average weighted marks throughout the BSc (PFM) program	

Department	Name of Award	Course / Year of Student		Award Criteria
		Year of	Student	
Department of Real Estate	Amos Koh Medal	BSc (RE) 4	Best student in the Dissertation module	
	Ascendas Medal and Prize	BSc (RE) 4	Student with highest average mark in both Real Estate Finance and Real Estate Investment Analysis	
	BEMA Gold Medal	BSc (RE) 4	Best student in Real Estate Practice and Ethics	
	CapitaLand Medal and Prize	BSc (RE) 4	Best student who obtained the highest mark for Real Estate Risk Analysis and Management	
	CBRE Medal and Prize	BSc (RE) 4	Best student who obtained the highest mark for Real Estate Market Analysis	
	Colliers Medal and Prize	BSc (RE) 4	Best Student who obtained the highest average mark for RE1104, RE2102, RE2104 and RE2106	
	Fission Medal and Prize	BSc (RE) 4	Best student in Urban Planning	
	Huttons Marketing Medal and Prize	BSc (RE) 4	Best student in Real Estate Marketing and Negotiation	
	Keppel Land Medal and Prize	BSc (RE) 4	Best student attaining highest mark for Real Estate Development	
	Knight Frank Medal and Prize	BSc (RE) 4	Best student attaining highest mark for REIT Management	
	Lee Kuan Yew Gold Medal	BSc (RE) 4	Best student throughout the course of study	
	Sally Meyer Medal	BSc (RE) 4	Best student for the degree of Bachelor of Science (Real Estate)	
	Seek Ngee Huat Medal and Prize	BSc (RE) 4	Best progress student with the greatest improvement on academic performance from year 3 to year 4	
	SISV Gold Medal	BSc (RE) 4	Highest average weighted marks throughout the BSc (RE) programme	
	SLA Medal and Prize	BSc (RE) 4	Best student who obtained the highest mark for Public Policy and Real Estate Markets	
	World Valuation Congress Medal	BSc (RE) 4	Best student in Valuation modules	

4 Graduate Education

4.1 [Research Programmes](#)

4.2 [Coursework Programmes](#)

4.3 [Financial Assistance and Scholarships](#)

4.4 [Academic Awards](#)

4.1 Research Programmes

4.1.1 [Degrees Offered](#)

4.1.2 [Degree Requirements](#)

4.1.1 Degrees Offered

The research programmes offered in the School of Design and Environment are as follows:

- Master of Arts (Architecture)
- Master of Arts (Industrial Design)
- Master of Science (Building)
- Master of Science (Real Estate and Urban Economics)
- Doctor of Philosophy
- NUS-DTU Joint PhD Programme

4.1.2 Degree Requirements

Master's Degree by Research

- Minimum CAP of 3.00 for all four modules (or 16 modular credits equivalent) taken under coursework requirements
- “Satisfactory” grade in graduate seminar module
- Satisfactory Grade of “C” or better in English Language Course (Intermediate Level), if the student is required to take the graduate English Language Course
- Pass in Master’s thesis

Doctor of Philosophy (PhD)

- Minimum CAP of 3.50 for all six modules (or 24 modular credits equivalent) taken under coursework requirements
- “Satisfactory” grade in doctoral seminar module
- Satisfactory Grade of “C” or better in English Language Course (Advanced Level), if the student is required to take the graduate English Language Course
- Pass in Qualifying Examination (includes a Comprehensive Written Examination and a closed door oral defence)
- Pass in PhD Thesis and Oral Examination

4.2 Coursework Programmes

4.2.1 [Degrees Offered](#)

4.2.2 [Degree Requirements](#)

4.2.1 Degrees Offered

- Master of Architecture
- Master of Arts (Urban Design)
- Master of Landscape Architecture
- Master of Science (Building Performance and Sustainability)
- Master of Science (Project Management)
- Master of Science (Real Estate)
- Master of Urban Planning
- Master of Science (Integrated Sustainable Design)
- Master of Science (Environmental Management)
- The NUS MBA – Master of Science (Real Estate) Double Degree Programme
- The NUS Master of Science (Real Estate) and Renmin MBA Double Degree Programme

4.2.2 Degree Requirements

4.2.2.1 [Master of Architecture](#)

4.2.2.2 [Master of Architecture with specialisation in Urban Design](#)

4.2.2.3 [Master of Architecture with specialisation in Design Technology and Sustainability \(DTS\)](#)

4.2.2.4 [Master of Arts \(Urban Design\)](#)

4.2.2.5 [Master of Landscape Architecture](#)

4.2.2.6 [Master of Science \(Building Performance and Sustainability\)](#)

4.2.2.7 [Master of Science \(Project Management\)](#)

4.2.2.8 [Master of Science \(Real Estate\)](#)

4.2.2.9 [Master of Urban Planning](#)

4.2.2.10 [Master of Science \(Integrated Sustainable Design\)](#)

4.2.2.11 [Master of Science \(Environmental Management\)](#)

4.2.2.12 [The NUS MBA – Master of Science \(Real Estate\) Double Degree Programme](#)

4.2.2.13 [The NUS Master of Science \(Real Estate\) and Renmin MBA Double Degree Programme](#)

4.2.2.1 Master of Architecture

Programme Objectives

The strategic objective of the M (Arch) programme is to prepare students for a professional career in architecture in a rapidly changing global context, with experiences developed from Singapore and international perspectives. It hopes to achieve this with a team of international academics and practitioners:

1. To develop intellectual and critical thinking skills in and around the field of architecture.
2. To develop rigour in the discipline of architectural design and the ability to integrate the many aspects - theoretical and practical - in the design process.
3. To develop ability in scholarly research.
4. To further the concept of tropical environment architecture.

Design is the central core discipline. It is complemented by other courses that focus on the technological, ethical, and professional and management aspects of architecture. Design constitutes approximately two thirds of the M (Arch) course content. The design programmes offered in the M (Arch) programme are generally more complex in nature. Students are expected to demonstrate rigour in their approach towards designs. The final schemes should not merely demonstrate competence but also draw in other ethical and cultural issues with which the schemes are engaged.

Entry Requirements

Candidates are required to possess:

- a BA (Arch) Hons accredited degree OR
- BA (Arch) accredited degree

Applicants must provide proof of accreditation by a National Accreditation Board or the Board of Architects of the country of origin; or Board of Architects (Singapore), subjected to approval by the Board of Graduate Studies.

External candidates admitted to the M (Arch) programme need to fulfil min C grade for AR5801 Options Design Research Studio 1 and AR5802 Options Design Research Studio 2 in order to proceed to M (Arch) final year.

The criteria for BA (Arch) concurrent degree programme (CDP) students are as follows:

BA (Arch) -AY2017/18	BA (Arch) -AY2018/19
Cohort & earlier	Cohort onwards

Admission Requirement	<ul style="list-style-type: none"> Min B- average for AR3101/AR3101a (Design 5/ Landscape Architecture emphasis) & AR3102/AR3102a (Design 6/ Landscape Architecture emphasis) Min B- for AR3102/AR3102a Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> Min B average for AR3101/AR3101a (Design 5/ Landscape Architecture emphasis) & AR3102/AR3102a (Design 6/ Landscape Architecture emphasis) Min B for AR3102/AR3102a Portfolio Review and Interview for Discretionary Admission
Continuation requirement for M.Arch final year leading to M (Arch) (Architectural Design Track):	<ul style="list-style-type: none"> Min B- average for AR5801 Options Design Research Studio 1 and AR5802 Options Design Research Studio 2 Min CAP of 2.50 Portfolio Review and Interview for Discretionary Admission 	<ul style="list-style-type: none"> Min C for AR5801 Options Design Research Studio 1 and AR5802 Options Design Research Studio 2 Min CAP of 2.50
Graduation requirement	<ul style="list-style-type: none"> Minimum CAP of 3.00 and Minimum grade B- for AR5807 Architectural Design Thesis 	<ul style="list-style-type: none"> Minimum CAP of 3.00 and Minimum grade B- for AR5807 Architectural Design Thesis

Candidates who meet the relevant requisites would also be considered for specialisation in **Urban Design** in the M (Arch) final year (see [4.2.2.2](#)).

Graduates of this programme will have a prerequisite degree for professional registration in Singapore.

Graduation Requirements

Successful completion of the M (Arch) programme requires a candidate to complete 80 MCs of four electives and nine essential modules. To graduate, students have to fulfil the degree requirement of:

- Minimum CAP of 3.00 and
- Minimum grade B- for AR5807

Period of Candidature

The programme is conducted on a full-time basis lasting two years consisting of four semesters. The maximum period of candidature is limited to six semesters.

Syllabus

M (Arch) Prep Year		MCs
Semester 1		
AR5801	Options Design Research Studio 1	8
AR5321	Advanced Architectural Integration	4
AR5601	Urban Design Theory and Praxis	4
Elective 1		4
Semester 2		
AR5802	Options Design Research Studio 2	8
AR5423	Architectural Practice	4
Elective 2		4
Elective 3		4
Total MCs		40
M (Arch) Final Year		MCs
Semester 1		
AR5805	Advanced Architecture Studio	8
AR5806	Architectural Design Research Report	4
AR5221	Contemporary Theories	4
Elective 4 (Semester 1 or 2)		4
Semester 2		
AR5807	Architectural Design Thesis	20
Total MCs		40

4.2.2.2 Master of Architecture with specialisation in Urban Design

Programme Objectives

The rapid urbanisation of the Asian landscape and the equally swift transformation of its cities create an urgent need in the region for design professionals, especially practising architects and planners, to deal with problems of designing within existing urban fabrics and in the periphery of rapidly growing cities. Exposure to a wide scale of design issues ranges from the layout of towns and the restructuring of inner cities to the shaping of streets as settings for public life. The provision of open spaces that nurture civic consciousness also require in-depth consideration.

The M (Arch) programme with specialisation in Urban Design aims to offer a broad based education in the theory and practice of urban design to enhance the knowledge and abilities of professional architects involved in the design, creation, and evaluation of urban spaces. More specifically, the programme hopes to achieve the following objectives:

1. Produce environmentally and socially responsible professionals who are committed to the provision of good urban public areas.
2. Develop analytical and methodological skills that are critical foundations to urban design processes.
3. Provide exposure, at an advanced level, to the full range of issues that bear upon the design and realisation of large scale urban space.
4. Prepare students for advanced careers in urban design, consulting, research or public service, or in preparation for further academic training.

Entry Requirements

Entry requirements include completion of the M (Arch) preparatory programme with minimum CAP of 2.50, and minimum 'B+' average for AR5801 Options Design Research Studio 1 and AR5802 Options Design Research Studio 2 with portfolio review.

Graduation Requirements

Successful completion of the M (Arch) (specialisation in Urban Design) requires a candidate to complete 80 MCs of eleven essential modules and five electives. To graduate, students have to fulfil the degree requirement of:

- Minimum CAP of 3.00 and
- Minimum C in UD5601 and UD5602 with at least 'B' - in either UD5601 or UD5602

Period of Candidature

The programme is conducted on a full-time basis lasting two years consisting of four semesters. The maximum period of candidature is limited to six semesters.

Syllabus

Syllabus

M (Arch) Prep Year		MCs
Semester 1		
AR5801	Options Design Research Studio 1	8
AR5321	Advanced Architectural Integration	4
AR5601	Urban Design Theory and Praxis	4
Elective 1		4
Semester 2		
AR5802	Options Design Research Studio 2	8
AR5423	Architectural Practice	4
Elective 2		4
Elective 3		4
Total MCs		40
M (Arch) Final Year (specialisation in Urban Design)		MCs
Semester 1		
UD5601	Urban Design Studio 1	8
UD5521	Planning Process: Quantitative and Policy Dimensions	4
UD5622	Methods of Urban Design and Urban Analysis	4
AR5221	Contemporary Theories	4
Semester 2		
UD5602	Urban Design Studio 2	8
UD5628	Sustainable Urban Design and Development	4

Elective 4	4
Elective 5	4
Total MCs	40

4.2.2.3 Master of Architecture with specialisation in Design Technology and Sustainability (DTS)

Programme Objectives

M (Arch) with specialisation in DTS offers a broad based architectural education that advances design investigation into technology and sustainability. It seeks to cultivate design approaches involving critical thinking, holistic perception, technical imagination and sustainability literacy. The programme aims to achieve the following objectives:

1. Produce environmentally and socially responsible professionals who are committed to the provision of comprehensive architectural design.
2. Develop analytical and methodological skills that are critical foundations to design processes integrating technology.
3. Provide exposure to the full range of issues that bear upon the design and realization of buildings addressing sustainability.

Entry Requirements

This specialisation is available only to NUS BA (Architecture) concurrent degree students (CDP) with effect from AY2018/2019.

The criteria for NUS BA (Arch) concurrent degree (CDP) students as follows:

BA (Arch) -AY2017/18 Cohort & earlier	
Admission Requirement	<ul style="list-style-type: none">• Min B- average for AR3101/AR3101a (Design 5/ Landscape Architecture emphasis) & AR3102/AR3102a (Design 6/ Landscape Architecture emphasis)• Min B- for AR3102/AR3102a• Portfolio Review and Interview for Discretionary Admission
Continuation requirement for M.Arch final year leading to M (Arch) (DTS specialisation):	<ul style="list-style-type: none">• Min B- average for AR5803 Architectural & Technology Design 1 and AR5804 Architectural & Technology Design 2• Min CAP of 2.50• Portfolio Review and Interview for Discretionary Admission
Graduation requirement	<ul style="list-style-type: none">• Minimum CAP of 3.00 and• Minimum grade B- for AR5808 Final Design Project

Graduation Requirements

Successful completion of the M (Arch) with specialisation in DTS requires a candidate to complete 84 MCs of ten essential modules and four electives. To graduate, students have to fulfil the degree requirement of:

- Minimum CAP of 3.00 and
- Minimum grade 'B-' for AR5808

Period of Candidature

The programme shall be conducted on a full-time basis lasting two years consisting of four semesters. The maximum period of candidature is limited to six semesters.

Syllabus

M (Arch) Prep Year		MCs
Semester 1		
AR5803	Architectural & Technology Design 1	8
AR5321	Advanced Architectural Integration	4
AR5601	Urban Design Theory and Praxis	4
Elective 1		4
Semester 2		
AR5804	Architectural & Technology Design 2	8
AR5423	Architectural Practice	4
Elective 2		4
Elective 3		4
Total MCs		40
M (Arch) Final Year		MCs
Semester 1		
AR5805	Advanced Architecture Studio	8
AR5121	Special Topics in Technology	4
Technology Elective selected from list of modules as advised by Department		4

Technology Elective selected from list of modules as advised by Department	4
Semester 2	
AR5808 Final Design Project	20
Elective 4	4
Total MCs	44

4.2.2.4 Master of Arts in Urban Design

Programme Objectives

The Master of Arts (Urban Design) programme is an intensive course that aims to inculcate in graduates the ability to study the city in more complex and inclusive terms and to design successful urban spaces that take into careful consideration current and future users based on an understanding of a wide range of issues including those impinging on economics, ecology, sociology, environmental psychology, technology, urban geography, cultural theory to real estate.

The primary aim of the Master of Arts (Urban Design) is to offer a broad-based education in the theory and practice of urban design to enhance the knowledge and abilities of professionals involved in the design, creation, and evaluation of urban spaces.

Entry Requirements

- Bachelor of Architecture / Bachelor of Arts (Architecture) (Hons) OR Master of Architecture OR Honours / Graduate degree in a related discipline (minimum 4-year undergraduate degree is required)
- Interview, and portfolio review where necessary
- Relevant experience in a related discipline is preferred

Graduation Requirements

Successful completion of the programme requires a candidate to:

Option 1: Complete one dissertation and to pass six essential modules and one elective.

Option 2: Do two elective modules in lieu of Dissertation, i.e., Pass six essential modules (including urban design studios) and three elective modules.

Total number of Modular Credits required is 44. Minimum CAP for graduation is 3.00.

Period of Candidature

The programme can be completed in one year on a full-time basis, or in two years on a part-time basis. The maximum period of candidature is four semesters for full-time candidates, and six semesters for part-time candidates.

Field Trip

Urban Design Studio 2 (UD5602) will include a compulsory one-week international workshop in the form of a field trip to a regional city to work with the relevant local planning/design authority and academic institution (cost of field trip borne by the student).

Syllabus

(Elective modules listed may not be offered in any one academic semester or year.)

* For students who choose to do two electives in lieu of Dissertation

ESSENTIAL MODULES		MCS (OPTION 1)	MCS (OPTION 2)	SEMESTER
UD5641	Dissertation	8	-	2
UD5601	Urban Design Studio 1	8	8	1
UD5602	Urban Design Studio 2	8	8	2
UD5221	Theory and Elements of Urban Design	4	4	1
UD5521	Planning Process: Quantitative and Policy Dimensions	4	4	1
UD5622	Methods of Urban Design and Urban Analysis	4	4	1
UD5628	Sustainable Urban Design and Development	4	4	2
ELECTIVE MODULES		MCS (OPTION 1)	MCS (OPTION 2)	SEMESTER
Min. 1 module offered in Department/School		4	12*	1 or 2
Total MCs		44	44	-

4.2.2.5 Master of Landscape Architecture

Programme Objective

The Master of Landscape Architecture (M (LA)) is offered as a two-year, full-time professional degree programme. Modules are taught by highly qualified staff from the School of Design & Environment's Department of Architecture, who bring to the curriculum in-depth practical experience and cutting edge research.

The programme is unique in its focus on the urban elements of landscape architecture. This emphasis distinguishes it from many traditional landscape schools which focus on rurality or sub-urbanity. The M (LA) programme aims to develop specialised knowledge which addresses the challenges facing Asian cities and mega cities situated in the tropics. With as much as two thirds of the world's population living in the tropics and the sheer richness in variety of flora and fauna, this Asian context poses a thought-provoking challenge for urban landscape designers.

In addition, the programme's location in Singapore allows students access to a veritable landscape architecture design laboratory for new urban landscape concepts such as vertical greenery, sky-rise greenery and urban green networks.

Entry Requirements

This is a two-year full-time professional degree programme providing education and training in landscape architecture. The programme consists of 15 essential modules spread over two years: Masters Preparatory Year and Masters Final Year.

Students with a previous Bachelor degree in Landscape Architecture recognised by the Department of Architecture and Singapore Institute of Landscape Architects will be admitted to the preparatory year which is similar to the 4th year of the Bachelor of Arts (Architecture) (specialisation in Landscape Architecture) programme.

Candidates are required to pass all the modules in the preparatory programme with a minimum B-average for LA4701 and LA4702 and minimum CAP of 2.50 before they are allowed to proceed to the one-year M (LA) final year programme.

Graduation Requirements

The M (LA) programme requires a candidate to complete 40 MCs of a dissertation and six essential modules. To graduate, students have to fulfil the additional requirements of:

- Minimum CAP of 3.00 and
- Minimum grade B- for both LA5701 and LA5702

Period of Candidature

The programme shall be conducted on a full-time basis lasting two years consisting of four semesters. The maximum period of candidature is limited to six semesters.

Syllabus

M (LA) Year 1 - Preparatory Programme		MCs
Semester 1		
LA4701	MLA Studio: Quarter	8
LA4203	History and Theory of Landscape Architecture	4
LA5301	Geo Design	4
Elective		4
Semester 2		
LA4702	MLA Studio: City	8
LA4202	Planting Design	4
LA4212	Topics in Tropical Forest Ecology	4
LA5302	Detail Design	4
Total MCs		40
M (LA) Year 2 - Master of Landscape Architecture		MCs
Semester 1		
LA5701	MLA Studio: Country	8
LA5201	Policy of Landscape	4
LA5222	Urban Ecology and Design	4
Elective		4
Semester 2		
LA5702	MLA Studio: Region	8

LA5303	Urban Greening: Technologies And Techniques	4
LA5742	Dissertation	8
Total MCs		40

4.2.2.6 Master of Science in Building Performance and Sustainability

Programme Objective

The Master of Science (Building Performance and Sustainability) programme is a multi-disciplinary educational programme. The aim of the programme is to offer graduates of different disciplines, who are engaged in design, construction, commissioning, operation and maintenance of building systems and services, an opportunity to acquire knowledge and practice in the broad field of Building Performance and Sustainability. This knowledge is vital for those engaged in such activities in the 21st century that confronts mankind with irreversible effects of climate change and potentially adverse consequences now and in the future. This global phenomenon necessitates a paradigm shift towards creating buildings that are not only comfortable and healthy for the occupants but are also sustainable. Whilst the Master of Science (Building Performance and Sustainability) programme is firmly embedded with the challenges and issues in the building sector faced in the rapidly developing urbanization of cities in the tropical belt of the world that has the potential to impact in excess of 2 billion people, it also addresses similar fundamental issues related to other climates and cultures elsewhere in the world.

Entry Requirements

At least a bachelor's degree with honours in a relevant discipline.

Candidates should have at least two years of relevant practical experience after their first degree. A good TOEFL score (580) or equivalent is required of applicants whose medium of undergraduate instruction is not in English.

Graduation Requirements

The Master of Science (Building Performance and Sustainability) is a multi-disciplinary educational programme that can be completed in 1 year on a full-time basis, or in 2 years on a part-time basis.

Successful completion of the programme requires a candidate to pass 40 Modular Credits comprising 9 graduate level modules; or 7 graduate level modules and complete a dissertation. This includes an 8 MC studio module. The requirements for Prescribed Elective (PE) modules can be fulfilled by choosing any module(s) from the list of PE modules in the Master of Science (Building Performance and Sustainability) programme. There is also a provision to read up to a maximum of two Unrestricted Elective (UE) modules.

Period of Candidature

The graduation requirements of 40 modular credits (MCs) are to be done within a maximum period of 4 semesters for full-time candidates, and 6 semesters for part-time candidates, and with a minimum Cumulative Average Point (CAP) of 3.00.

Syllabus

Essential Modules		Offered in
BPS5111	Integrated Building Design	Semester 1
BPS5112	Green Building Integration and Evaluation Studio	Semesters 1 & 2
Prescribed Elective Modules		
BPS5221	Microclimate Design	Semester 1
BPS5222	Indoor Environmental Quality	Semester 2
BPS5223	Building Energy Performance - Passive Systems	Semester 1
BPS5224	Building Energy Performance - Active Systems	Semester 1
BPS5225	Building Energy Audit and Performance Measurement and Verification	Semester 2
BPS5226	Smart Building and Facilities	Semester 2
BPS5227	Maintainability and Green Facilities Management	Semester 2
BPS5228	Advanced Building Materials and Structures	Semester 2
BPS5300	Special Topics in Building Performance and Sustainability	Semesters 1 & 2
Unrestricted Modules		
Any TWO approved graduate level modules or BPS5000 Dissertation (Optional)		

4.2.2.7 Master of Science in Project Management

Programme Objectives

This programme aims to provide professionals with the sound management skills and techniques necessary for the successful completion of complex projects. The programme focuses on front-end general project management issues such as development, finance, contract, and dispute management. This is supplemented by allowing students to take elective modules from other faculties according to their professional specializations. The programme is taught by senior faculty members and industry experts. It attracts specialists from various sectors such as construction, engineering marine, and IT. Participants from overseas feature strongly on all intakes, and the wide mix of expertise allows for meaningful exchange and interaction at graduate level. The Project Finance specialisation has been introduced in the MSc (PM) curriculum with effect from AY2014/2015, Semester 1.

Entry Requirements

At least a bachelor's degree with honours in a relevant discipline.

Candidates should have at least two years of relevant practical experience after their first degrees.

Concurrent Degree Programme

The MSc (PM), Concurrent Degree Programme (CDP) is open for admission to eligible undergraduates from relevant NUS faculties and schools who have completed 80 modular credits with a CAP of at least 4.00.

During the undergraduate study, a CDP student must take:

- 2 MSc (PM) modules during the undergraduate years if he/she is not specialising in Project Finance
- 3 MSc (PM) modules during the undergraduate years if he/she is specialising in Project Finance
- 5 MSc (PM) modules during the additional semester after the final undergraduate semester whether specialising or not specialising

The MSc (PM) modules completed during the undergraduate years will be transferred as MSc modules to the MSc (PM) programme.

Graduation Requirements

MSc (PM) without Specialisation

The programme can be completed in one year on a full-time basis, or in two years on a part-time basis. Successful completion of the programme requires a candidate to pass:

- (a) 3 essential modules;
- (b) 4 modules from prescribed elective modules and specialisation modules; and
- (c) 3 unrestricted elective modules (or a dissertation plus one unrestricted elective module).

MSc (PM) with Specialisation

The programme can be completed in one year on a full-time basis, or in two years on a part-time basis. Successful completion of the programme requires a candidate to pass:

- (a) 3 essential modules;
- (b) 5 specialisation modules; and
- (c) 2 unrestricted elective modules (or a dissertation)

This is to be done with a Cumulative Average Point (CAP) of not less than 3.00 and within a maximum period of 4 semesters for full-time candidates, and 6 semesters for part-time candidates.

Period of candidature

The Master of Science (Project Management) programme can be completed in one year on a full-time basis, or in two years on a part-time basis.

Syllabus

Essential Modules		Offered in
PM5101	Project Management	Semester 2
PM5103	Contract Management	Semester 1
PM5112	Research Methods	Semester 1

Prescribed Elective Modules (for MSc (PM) without specialisation
choose any 4 modules from the Prescribed Elective Modules and the
Specialisation Modules)

PM5106	Design Management	Semester 1
PM5107	Time and Cost Management	Semester 2

PM5111	Special Topics in Project Management	Semester 1 & 2
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Specialisation Modules (for MSc (PM) with Specialisation, choose any 5 Modules)

PM5105	Development Finance	Semester 2
PM5109	Project Management Law	Semester 2
PM5113	Managing Projects using BIM	Semester 1
PM5114	Managing Complex Projects	Semester 1
PM5115	Project Finance Contract & Agreements	Semester 2
PM5116	Project Finance Case Studies	Semester 1

Unrestricted Elective Modules

Students can take any three approved master level modules within NUS (e.g. IT or engineering modules) or complete a dissertation and an unrestricted elective module. For the Project Finance specialisation track, the graduation requirement includes the 3 essential modules, 5 Project Finance specialisation modules and 2 unrestricted elective modules or a dissertation.

4.2.2.8 Master of Science in Real Estate

Programme Objectives

The programme curriculum provides an up-to-date programme that is grounded in academic rigour and relevant in its coverage of the industry's needs. The programme is designed to provide a strong foundation in strategic decisions within the real estate development process. The structure also allows sufficient flexibility for candidates to develop their interest in other specialised areas.

Entry Requirements

- At least a bachelor's degree with honours in a relevant discipline.
- Candidates should have at least two years of relevant practical experience.
- TOEFL/IELTS score is required for applicants whose medium of undergraduate instruction is not in English.

At the point of application, GRE scores are not compulsory. For all coursework programmes, additional requirements may be stipulated later, e.g. when prospective applicants come from universities whose academic standards are not known. These may include GRE scores.

Graduation Requirements

To graduate, a candidate must

- Pass 5 essential modules (20 MCs worth)
- Pass 3 – 5 elective modules (20 MCs worth) (of which 2 can be Cross Faculty Modules)
- Achieve a minimum Cumulative Average Point (CAP) of 3.00 which is equivalent to an average grade of B-;
- Not fail two or more modules in any semester for a full-time candidate or in any year of study for part-time candidates.

Period of Candidature

Candidates graduate after completing the 40 Modular Credit programme within a maximum period of four semesters for full-time candidates, and six semesters for part-time candidates. On average, the programme requirements can be completed in one year on a full-time basis, or in one and a half years on a part-time basis.

A full-day session, lasting one week, will be held at the beginning of Semester One of Year One. This is followed by evening classes, typically two to three times per week. Some elective modules may be offered on full-day sessions. The full-time programme is integrated with the part-time programme.

Syllabus

Essential Modules		Offered in
RE5001	Real Estate Development (4 MCs)	Semester 1
RE5003	Real Estate Investment (4 MCs)	Semester 1
RE5004	Real Estate Economics (4 MCs)	Semester 1
RE5005	Real Estate Finance (4 MCs)	Semester 2
RE5013	Urban Policy & Real Estate Markets (4 MCs)	Semester 2
RE5000	Dissertation (8 MCs)	Semester 1 & 2
RE5006	Portfolio and Asset Management (4 MCs)	Semester 2
RE5009	Commercial Real Estate Appraisal (4 MCs)	Semester 1
RE5010	Special Seminar (4 MCs)	Semester 2
RE5011	International Field Study (8 MCs)	Semester 2
RE5014	RE Investment Trusts & Property Funds (4 MCs)	Semester 1
RE5015	Spatial Information Systems (SIS) for Urban Planning (4 MCs)	Semester 1
RE5016	Real Estate Securitisation (4 MCs)	Semester 2
RE5017	Real Estate Case Study (4 MCs)	Semester 2
RE5018	Statutory Valuation (4 MCs)	Semester 2

4.2.2.9 Master of Urban Planning

The new programme is offered jointly by the Departments of Architecture and Real Estate.

Programme Objectives

The Master of Urban Planning(MUP) is a two-year multi-disciplinary programme that offers motivated individuals with all the necessary spatial design and intellectual skills to become urban planning professionals that will meet the challenges of a rapidly urbanising world. The programme builds on existing teaching content and research strengths of the Departments of Architecture and the Department of Real Estate, namely Spatial Design, Sustainability and Development Financing.

The programme seeks to produce graduates who, as individuals, are global citizens and responsible members of society, make ethical choices in matters of environment and society, and as well-rounded planning professionals, are equipped with urban planning and spatial design and communication skills to contribute to the development of sustainable cities and regions. In addition, they learn to be holistic in the analysis and understanding of complex underlying issues that impact cities and regions, focus on the physical planning and the spatial design of the overall structure or individual elements of the territory, and adopt an integrated approach in developing multi-disciplinary planning solutions.

Key Emphases of the Programme:

1. Integration of multi-disciplinary knowledge

The synergy between disciplines and stakeholders, during the design process, can result in more holistic outcomes. On the studio-based projects where student teams solve problems together and, in the process, rethink disciplinary boundaries.

2. Focus on the Asian Context

The programme, through the various taught modules, keep abreast of the latest global knowledge to develop innovative urban and regional planning solutions focused on Asian context of rapidly urbanizing and high density environments.

3. Exposed to Different Planning Skills

The acquisition of spatial planning skills will equip graduates with the ability to 'zoom' between scales, using the design and planning tools that are appropriate to the different scales but without losing sight of the overall picture.

Entry Requirements

Candidates are selected on the basis of their academic qualifications and relevant industry experience. An applicant must submit the following:

1. Evidence of at least a bachelor's degree in a spatial design discipline (Architecture, Landscape Architecture, Urban Design, Urban Planning) or a related field of study (Urban Studies, Geography, Real Estate, Civil Engineering)
2. A detailed curriculum vitae and/or project portfolio.
3. TOEFL score of 92 (internet-based testing) or equivalent for applicants whose first degree is not

taught in English.

Graduation requirements

The graduation requirement is 80 modular credits (MCs) and with a Cumulative Average Point (CAP) of at least 3.00. The 80 MCs are attained by completing the following:

- Four Essential Modules (Studio Projects) comprising 24 modular credits (MCs),
- Seven Essential Modules (Non-Studio) comprising 28 modular credits (MCs)
- Seven Elective Modules, selected from the multidisciplinary basket of approved modules, comprising 28 modular credits (MCs).

Period of Candidature

The MUP programme is designed to be completed in four semesters (two years) on a full-time basis.

Full-time candidates must complete the requirements of the programme within a maximum candidature period of six semesters (three years).

Syllabus

Essential Modules		Offered in
Year 1 Semester 1		20
DEP5101	Urban Analysis Workshop	4
DEP5101A	Qualitative Methods for Urban Planning	4
DEP5104	Urban and Regional Economics	4
UD5521	Planning Process	4
	Elective Module 1	4
Year 1 Semester 2		20
DEP5103	Urban Planning Studio	4
DEP5103A	Quantitative Methods for Urban Planning	4
DEP5102	Urban Planning History and Theory	4
	Elective Module 2	4
	Elective Module 3	4
Year 2 Semester 1		20

UD5601	Urban Design Studio	8
DEP5105	Urban Infrastructure & Mobility Systems	4
	Elective Module 4	4
	Elective Module 5	4
Year 2 Semester 2		20
DEP5106	Integrated Urban Planning Studio	8
ISD5105	Principles of Sustainable Development	4
DEP5107	Planning Report OR	8
	Elective Module 6 and Elective Module 7 (4 MC each)	
Total		80

Asian Master of Urbanism Certificate Programme

The AMU certificate is designed for students who are enrolled in the Master of Urban Planning Programme in NUS and its equivalent Master's degree programmes in Tongji University, Tsinghua University and The University of Tokyo. Students enrolled in the AMU programme may spend two semesters at the home university and up to two semesters at any two participating host universities. Modules taken at the overseas universities would be mapped to home university modules accordingly. Upon completion of all graduation requirements of the Certificate Programme, the AMU student will receive a certificate which is jointly signed by the representatives of all the partnering universities.

4.2.2.10 Master of Science in Integrated Sustainable Design

This programme is offered by the NUS School of Design and Environment, jointly managed by the Departments of Architecture and Building.

Programme Objectives

The MSc ISD is a unique one-year post-professional degree programme for individuals with an interest in the sustainable development of the built environment. The programme's past and current students include architects, engineers, landscape architects, urban planners, project managers and educators.

The programme offers insights, knowledge and skill-sets for a holistic approach to sustainability. The programme curriculum has four areas of emphases:

- **The Asian Context** | The programme asks what it means to design and build for Asia. It inculcates a sensitivity to climate, socio-economic factors and environmental vulnerabilities that are particular to the region.
- **Buildings & Cities** | The programme's modules examine different scales at which the built environment is designed and operated. The first semester is devoted to the building scale; the second semester probes the urban scale. In both cases, candidates are taught to understand the interdependency of buildings and urban networks.
- **Strategic Thinking** | Modules emphasise strategic and critical thinking over text-book learning. This is about asking the right questions at the start of the design-construction process.
- **Interactive, Integrative, Multidisciplinary** | Learning focuses on process: the how and why of decision making. It advocates synergy between disciplines and stakeholders, bridging knowledge and viewpoints.

Entry Requirements

Candidates are selected on the basis of their academic qualifications and industry experience. An applicant must assemble the following:

1. Evidence of a bachelor's degree with honours in Architecture, Engineering, Landscape Architecture, Planning/Urban Design, Project and Facility Management or other building-related degree programmes, or qualifications as may be approved by National University of Singapore's Senate.
2. A detailed CV and project portfolio, the former describing at least two years of relevant practical experience and the latter illustrating this with projects in which the applicant has had an active role. The portfolio should be no larger than A4 format and it should highlight, in particular, the candidate's role in each project.
It is important that the CV and portfolio are used to illustrate the candidate's interest and experience in the subject of sustainability. This may include non-professional activities, where possible, for instance community and/or environmental activism, contributions to print or online publications, etc.
3. Letters of reference from at least two persons who know the applicant well in an academic or professional capacity.
4. An essay explaining in what way the question of sustainability is important to the candidate's home country/city/region, what s/he plans to do after graduation, and why, specifically, s/he has chosen MSc ISD. The essay should not exceed 2000 words.

5. TOEFL score of 580 or equivalent for applicants whose first degree is not taught in English.

Shortlisted candidates may be asked to appear for an interview. Where an applicant is not based in Singapore, the interview will take place via the internet.

Graduation requirements

The graduation requirement is 40 modular credits (MCs) and with a Cumulative Average Point (CAP) of at least 3.0. The 40 MCs can be attained by taking essential modules and two elective modules from existing master coursework programmes.

The programme is taught via six lecture modules and two studio projects.

Period of Candidature

The programme can be completed in one year (Students may join in Semester 1 or Semester 2), full time, or two years, part-time.

Syllabus

ESSENTIAL MODULES		MCS
Semester 1		20
ISD5101	Integrated Project Studio 1	8
ISD5103	Green Buildings in the Tropics	4
ISD5104	Energy and Ecology	4
	Programme Elective 1	4
Semester 2		20
ISD5102	Integrated Project Studio 2	8
ISD5105	Principles of Sustainable Urbanism	4
ISD5106	Sustainability Models and Blueprints	4
	Programme Elective 2	4
Total		40

4.2.2.11 Master of Science in Environmental Management

Programme Objectives

The MSc (Environmental Management) programme is a multi-faculty programme of the University, hosted by the School of Design and Environment. The programme is taught by faculty members from the school, and six other faculties in the University. Faculty members from the following Faculties or schools in the University teach on it:

- School of Design and Environment
- Faculty of Arts and Social Sciences
- NUS Business School
- Faculty of Engineering
- Faculty of Law
- Yong Loo Lin School of Medicine (Dept of Community, Occupational and Family Medicine)
- Faculty of Science

The MEM programme has an MOU with the School of Forestry and Environmental Studies, Yale University, and one faculty member of the School teaches on the programme.

The objectives of the MEM programme are:

- to provide an internationally recognised graduate degree in environmental management for mid- and senior-level managers in the public and private sectors in Singapore and the Asia-Pacific;
- to equip graduates with the necessary knowledge to properly manage the environment and to deal with the challenges of an environmentally conscious society and international market; and
- to enable graduates to assume responsible and influential roles in the public and private sectors and to make sound decisions that support sustainable development.

Entry Requirements

- A good undergraduate degree with honours from a well-recognized university
- Relevant working experience in environmental management, or environment-related fields in either the public or private sectors.
- For applicants from universities whose academic standards are not widely known, additional requirements may be stipulated.
- These may include the Graduate Management Admission Test (GMAT) and/or the Graduate Record Examination (GRE).
- For candidates whose medium of undergraduate instruction is not in English, a good Test of English as a Foreign Language (TOEFL) score is also required.
- Applicants with undergraduate degrees (and graduate degrees, if any) from Myanmar are required to submit documentary evidence of their TOEFL or IELTS scores.

Graduation Requirements

The MSc (Environmental Management) (MEM) Programme can be undertaken either full-time (one academic year) or part-time (two academic years). Candidates would be required to complete a 40 MCs programme, of which the main components are the following seven Core Modules.

To fulfil the requirements of the graduate coursework degrees programmes offered by the School of Design and Environment, a candidate must attain a minimum CAP of 3.00.

The candidature of a student will be terminated if he/she obtains the following:

1. a CAP of less than 2.50 for two consecutive semesters.
2. a CAP of less than 3.00 for three consecutive semesters.

In addition, each candidate must complete either one Elective module and a study report of 10,000 words, or a dissertation of 20,000 words. The candidate may choose the Elective from a wide range of modules related to the environment, offered by any of the faculties in NUS. Candidates are also required to attend a non-examinable seminar module, which covers, from an interdisciplinary perspective, global environmental issues and particular environmental challenges facing the Asian region. Speakers at these seminars are leaders in the specialised fields from the public and private sectors, as well as non-governmental organisations, both local and international.

Period of Candidature

Full-time candidates must complete the requirements of the programme within a maximum candidature period of four semesters (two years), and part-time candidates, a maximum period of six semesters (three years).

Syllabus

Essential Modules		Offered in
BX5101	Business and the Environment	Semester 2
BL5102	Environmental Science	Semester 1
LX5103	Environmental Law	Semester 1
ESE5901	Environmental Technology	Semester 2
PP5269	Environmental Economics and Public Policy	Semester 1
DE5106	Environmental Management and Assessment	Semester 1
DE5107	Environmental Planning	Semester 2

Conduct of Classes

Most of the classes are held in the School of Design and Environment. Most classes are held in the evenings, from 6.30 pm to 9.30 pm, with the exception of Elective Modules which may be held in the other Faculties or schools during other periods of the day.

Part-time candidates generally would be expected to attend two three-hour evening classes per week in each semester. Full-time candidates would attend, on average, four three-hour evening classes per week.

The modules are delivered in the form of interactive lectures, seminars, workshops and case studies. Field trips are arranged regularly, usually on Saturdays.

Under the compulsory Seminar Programme, seminars are held at regular intervals, usually on Friday evenings. Some intensive short courses, such as the one on Environmental Ethics, are occasionally held on Saturday mornings.

The NUS MBA - Master of Science in Real Estate (MRE) Double Degree Programme

The Master of Business Administration - Master of Science (Real Estate) Double Degree Programme (MBA-MRE DDP) is jointly offered by the NUS Business School and the Department of Real Estate, School of Design and Environment. As the leading programme of its kind in Asia, the MBA-MRE DDP will allow NUS to maintain its exclusivity in offering a top Business-Real Estate executive education combination in the region.

MBA-MRE DDP is an interdisciplinary programme which aims to train students to be analytical problem solvers capable of integrating cutting-edge knowledge in business and real estate to deliver superior management and investment decisions. Its curriculum places strong emphasis on developing global awareness and soft skills such as communication, teamwork, cross-cultural diversity and also environmental awareness. The MBA-MRE DDP has a strong applied component under which students gain valuable experience in addressing challenges faced by real companies

ADMISSION REQUIREMENTS

Candidates have to fulfill the admission requirements for both the MBA and MRE degree programmes to gain admission to the MBA-MRE DD programme. Students may apply for the MBA-MRE DD programme prior to starting either programme, or within the first semester of either programme that they have been admitted to.

Applicants seeking admission to the degree of Master in Business Administration (MBA) must have:

- A good undergraduate degree from a reputable academic institution;
- A minimum of two years of full-time post-graduation managerial experience
- Good GMAT or GRE score, with good scores in Analytical Writing Assessment, Verbal, Quantitative and Integrated Reasoning sections;
- TOEFL/IELTS score is required for applicants whose medium of undergraduate instruction is not in English.

Applicants seeking admission to the degree of Master of Science, Real Estate (MRE) must have:

- A good undergraduate degree with honours in a relevant discipline from a reputable academic institution;
- A minimum of two years of full-time post-graduation relevant practical experience

TOEFL/IELTS score is required for applicants whose medium of undergraduate instruction is not in English.

DEGREE REQUIREMENTS

MBA Core

CODE	TITLE	MC
BMA5001	Managerial Economics	4
BMA5002	Analytics for Managers	4
BMA5003	Financial Accounting	4
BMA5004A	Management and Organization	2
BMA5005	Management Accounting	2
BMA5008	Financial Management	4
BMA5009	Marketing Management	4
BMA5010A	Managing Operations	2
BMA5013	Corporate Strategy	4
BMA5016A	Leadership in Organization	2
BMA5801	Management Communication	0
Total MBA Electives		18

MRE Core

Code	Title	MC
RE5001	Real Estate Development	4
RE5003	Real Estate Investment	4
RE5004	Real Estate Economics	4
RE5013	Urban Policy & Real Estate Markets	4
RE5017*	Real Estate Case Study	4
Total MRE Electives		16
TOTAL MODULAR CREDITS		86

* **Note:** MBA-MRE DD programme candidates can take RE5017 (RE Case Study) in-lieu of BMA5901 (Management Practicum) which is a MBA core module.

The minimum and maximum candidature period for the MBA-MRE DDP are

Mode of Study	Minimum Candidature	Maximum Candidature
Full-time	2 Years	3 Years
Part-time	3 Years	5 Years

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The NUS Master of Science in Real Estate (MRE) - Renmin MBA Double Degree Programme

The NUS-RENMIN Double Degree of MSc (Real Estate) and MBA Programme covers a comprehensive range of contemporary issues in real estate and business development in Singapore, China and beyond. It is a 2-year full-time programme. Students will spend 1 year at RBS completing 35 modular credits (MCs) of MBA, and another year at NUS completing 32 MCs of MSRE. Students are also required to complete a RBS dissertation during their two years of study.

ADMISSION CRITERIA

The DDP admission criteria satisfy all the criteria of the existing NUS-MSRE and RENMIN-MBA programmes. Specifically, the candidates must:

1. Possess a good honours degree (or equivalent) in a relevant discipline.
2. At least two years of relevant work experience upon completion of bachelor's degree.
3. Applicants whose medium of undergraduate instruction is not in English will need to submit the TOEFL or IELTS result as evidence of language proficiency. The proficiency will be determined by the TOEFL score of at least 580-600 (paper-based test), 237-250 (computer-based test) or 85 (internet-based test), or an IELTS result of at least 6.0.
4. Applicants who are China nationals must pass China's national MBA admission examination. Applicants of other nationalities are recommended to submit the GMAT result.

HOW TO SUBMIT THE APPLICATION

- China nationals must send their application packages to Renmin University School of Business as their results of the national MBA-admission examination need to be administered.
- Applicants of other nationalities can submit their application packages to either NUS Department of Real Estate or Renmin University School of Business. Admission is decided by a Joint Admission Panel comprising faculty members from both NUS Department of Real Estate and Renmin University School of Business.

COURSE STRUCTURE

Study 1 year at RENMIN	Study 1 year at RENMIN	Study 1 year at NUS
Core MCs	29	20
Elective MCs	6	12
Total MCs	35	32

Other Requirements	A RBS MBA Dissertation & Social Practice/Internship Report (1 MC)	NIL
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CURRICULUM

Renmin University, China School of Business (RBS)Master Degree in Business Administration (MBA)	National University of Singapore (NUS) Department of Real Estate School of Design & EnvironmentMaster of Science Degree in Real Estate (MSRE)
<i>Core Modules (compulsory modules)</i> (Total MCs requested: 29 MCs) <ul style="list-style-type: none">• Human Resource Management (2 MCs)• Corporate Finance (3 MCs)• Organizational Behavior (2 MCs)• Data Modeling and Decision Making (3 MCs)• Operations Management (2 MCs)• Management Information System (2 MCs)• Strategic Management (3 MCs)• Financial Accounting (3 MCs)• Managerial Economics (3 MCs)• Marketing (3 MCs)• Business Ethics (3 MCs)	<i>Core Modules (compulsory modules)</i> (Total MCs requested: 20 MCs) <ul style="list-style-type: none">• Real Estate Development (4 MCs)• Real Estate Investment (4 MCs)• Real Estate Economics (4 MCs)• Real Estate Finance (4 MCs)• Urban Policy & Real Estate Markets (4 MCs)
<i>Elective Modules</i> (Total MCs requested: 6 MCs) - There are a total number of 124 modules to choose from.	<i>Elective Modules</i> (Total MCs requested: 12 MCs) - There are a total number of 12 modules to choose from
<i>Other</i> (Total MCs requested: 1 MC) - Social Practice/ Internship Report (1 MC)	

GRADUATION REQUIREMENTS AND AWARD OF DEGREE

Under the DDP, the MSRE degree and MBA degree will be separately conferred by NUS and RUC subject to meeting the graduation requirements of the respective universities.

The graduation requirements of NUS MSRE are set as follows:

1. Complete 20 essential MCs, as well as 20 elective MCs among which 8 elective MCs are satisfied by double counting MBA modules taken in RUC.
2. Achieve a minimum Cumulative Average Point (CAP) of 3.00 which is equivalent to an average grade of B-.
3. Not fail two or more modules in any semester.

Students under NUS graduate programme has to follow the guideline of "Graduate Programmes By Coursework" to fulfill the requirements for graduation. Please refer to the webpage information for the details. http://www.sde.nus.edu.sg/acad/SDE_Grad_ByCoursework.html

The graduation requirements of RUC MBA are as follows:

1. Complete 29 essential MCs, as well as 16 elective MCs among which 10 elective MCs are satisfied by double counting MSRE modules taken in NUS.
2. Complete the MBA dissertation.

Students who meet all the above requirements can earn both the NUS MSRE and RUC MBA degrees. The duration of the DDP is 2 years. In the event that a student fails any core modules in RUC, the student can still earn the MBA by retaking and passing those modules within 3 years. Similarly, if a student fails a core module in NUS, the students can still earn the MSRE degree by retaking and passing the module within one additional year, provided that the graduation requirements of the corresponding degree are still met.

Continuation:

DDP students must satisfy the NUS Graduate Continuation Requirements set for coursework based master's programmes, including the stand-alone MSRE. In addition, students must comply the Renmin continuation policy while in China.

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4.3 Financial Assistance and Scholarships

4.3.1 [Edward D'silva Award – Dissertation/ Design Thesis – Master of Architecture](#)

4.3.2 [NUSS MEM Scholarship](#)

4.3.3 [Shell Bursary](#)

4.3.4 [Shell Best Dissertation Award](#)

4.3.5 [Tan Chay Bing Bursary](#)

4.3.6 [The Asian Development Bank-Japan Scholarship](#)

4.3.7 [Cheong Koon Hean Scholarship](#)

4.3.1 Edward D'silva Award - Dissertation/ Design Thesis - Master of Architecture

The award is established by Mr Edward D'Silva to encourage the pursuit of excellence in the research of the dissertation and/or thesis. Recipient of the award which is valued up to \$3000 will be sponsored to make an overseas trip to destination related to his/her design thesis/ dissertation. Selection is based on strength of Dissertation/ Thesis Synopsis and Proposed Travel Plan and overall design and academic excellence. The dissertation topic/ thesis site should be located overseas that requires an in-depth study of the country and or selected site. Applicants are required to make a presentation of their proposal to the selection committee.

4.3.2 NUSS MEM Scholarship - Master of Science (Environmental Management)

The National University of Singapore Society (NUSS) MEM Scholarship was established to encourage studies in environmental management and to assist impassioned students of the MSc (Environmental Management) (MEM) who are in financial need. The goal is to facilitate and allow worthy participation in this Masters programme.

4.3.3 Shell Bursary - Master of Science (Environmental Management)

The Shell Bursaries are granted to full-time students of the MSc (Environmental Management) programme who are in need of financial support. Such students must have completed one semester of study on the programme, and must have achieved creditable academic standards.

4.3.4 Shell Best Dissertation Award - Master of Science (Environmental Management)

The Shell Best Dissertation Prize is awarded annually to the student of the MSc (Environmental Management) programme who has written the best dissertation in the graduating cohort of that year. The award is made on the basis of the final marks obtained, the difficulty of the topic chosen and the value of the research outcome. A number of the top candidates for each cohort are required to make presentations on their dissertations to a committee to determine the award.

4.3.5 Tan Chay Bing Bursary - Master of Science (Environmental Management)

The Tan Chay Bing Bursaries are granted to full-time students of the MSc (Environmental Management) programme who are in need of financial support.

4.3.6 The Asian Development Bank-Japan Scholarship - Master of Science (Environmental Management)

The Asian Development Bank (ADB)-Japan Scholarship Programme was established in 1988. It aims to provide an opportunity for well-qualified citizens of ADB's developing member countries to pursue graduate studies in economics, management, science and technology, and other development-related fields at participating academic institutions in the Asia and Pacific Region. Upon completion of study, scholars are expected to contribute to the economics and social development of their home countries.

4.4 Academic Awards

Medals and book prizes are awarded only once in the academic year, after the Semester 2 Examination. In all instances, a prize-winner must be of sufficient merit. He/She must have passed all modules attempted and must be a good overall student. No award will be made unless there is a candidate of sufficient merit.

Below is a full list of the medals and prizes for SDE students :

Department	Name of Award	Course / Year of Student	Award Criteria
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Department of Architecture	Lee Kuan Yew Gold Medal	M (Arch) (Concurrent BA(Arch) Hons & M (Arch))	Best graduate student throughout the course of study for Master of Architecture (Concurrent B.A.(Arch.) Honors and M.Arch. Degree programme.
	Singapore Institute of Architects Prize	MA(UD)	Best student throughout course of study
	Singapore Institute of Architects Medal	M (Arch)	Best graduate student in the course of study for Master of Architecture and has passed the Master of Architecture II examinations.
	Board of Architects Prize and Medal	M (Arch)	Best graduate student in Master of Architecture examination.
	Aedas Medal & Prize in Architectural Design Thesis	M (Arch)	Best graduate student in the Master of Architecture who has obtained the highest mark for AR5103 Architectural Design Thesis
	Aedas Medal & Prize in Sustainable Design	M (Arch) (DTS Specialization)	Best graduate student in the Master of Architecture (speicalisation in DTM) who has obtained the highest mark for AR5104 Final Design Project.
	P & T Medal & Prize	M (Arch)	Best graduate student in the Master of Architecture programme who has obtained the highest average mark for AR5421 (Architectural Practice 1) and AR5422 (Architectural Practice 2).
	Pioneer Architects (Lim Chong Keat) Prize	M (Arch)	Awarded to the Master of Architecture student whose final year design thesis display strong and discernible 'pioneering' spirit that is environmentally, economically and socially sustainable.
	Lee Kip Lin Medal and Prize for Best Graduating Dissertation in History and Theory of Architecture	M (Arch)	M.Arch graduating student attaining the highest mark in AR5141 Dissertation and Dissertation is in the area of History and Theory of Architecture
	Architecture Alumni Association (AAA) Prize	M (Arch)	Best dissertation in area of Asian Architecture and Urbanization

Department of Building	MSc (Building Performance and Sustainability) Medal	MSc(BPS) w.e.f S2 AY2011-12	Highest CAP throughout the course of study for Master of Science (Building Performance and Sustainability)
	SISV Gold Medal	MSc (Project Mgt)	Highest CAP throughout the course of study for Master of Science (Project Management)
Department of Real Estate	REDAS Gold Medal	MSc (RE)	Best graduate student in the course of study for M.Sc. (Real Estate).
Master of Sc (Environmental Management)	Shell Medal and Prize	MEM	Highest CAP throughout the course of study.
	Shell Best Dissertation Award	MEM	Best graduate student who has obtained the highest mark for DE5109 Dissertation module