NUS DEPARTMENT OF MECHANICAL ENGINEERING

B.Eng(ME) (Hons) & B.Soc.Sci (Economics) Double Degree Programme (Matriculating AY15/16)

| Degree Requirements | Modular Credits (MCs) | Comments | |
|---|---|---|--|
| (A) University Level Requirements | Total 20 MCs | | |
| GEMs | 20 MCs | | |
| (B) FASS Programme Requirements | Total 48 MCs | | |
| Level 1000 Exposure modules (Asian studies) | 4 MCs (from the Asian Studies Division + 8MCs of common modules) | Asian Studies modules: CH1101E, CL1101E, JS1101E, MS1101E, SE1101E, SN1101E. | |
| Single Major (Economics) | 44MCs (+16MCs of common modules) | | |
| (C) Engineering Programme Requirements | Total 96 MCs | Some engineering courses will have more than this. As it varies according to the engineering course, students should seek advice from their department on the recommended schedule. | |
| Engineering Modules | 96 MCs (+24MCs of common modules) | BEng Program requirements including Faculty & Discipline specific requirements (core, elective, projects & FYP Thesis). It is not compulsory for DDP students to do the Industrial Attachment | |
| (D) Common Modules | Total 24 MCs | | |
| These modules map towards both | Four common essential modules (16 MCs): MA1505, MA1506, PH2208 or PH2218 or PH2223, SC1101E or SC2202 | | |
| degrees. | 8MCs of electives: Any <u>One</u> BEng Module Any <u>One</u> BA(Econs) Module | See Table D | |
| (E) Unrestricted Elective Requirements | (Exempted) | | |
| Unrestricted Elective | - | Exempted under DDP Structure | |
| TOTAL | 188 MCs (min) | This is only the minimum requirement and will vary according to the engineering course. Students should seek advice from their department on the total MCs required to fulfil the DDP. | |

^{1.} These 16 MCs of common modules replace 14 MCs in the BEng(Hons) Programme requirements.

^{2.} PH2208 Applied Ethics or PH2218 Business Ethics or PH2223 Introduction to the Philosophy of Technology (fulfils the FoE requirement for the 3MC EG2401 Engineering Professionalism).

3. SC2202 Sociology of Work or SC1101E Making Sense of Society (fulfils the FoE requirement for the 3MC HR2002)

Semester Schedule for B.Eng. (M.E.) & BA Double Degree Programme (2015/2016)

| Semester I MCs Semester 2 MCs MA1505 Mathematics 1² 4 CA (*) MA1506 Mathematics 11² 4 CA PC1431 Physics IE 4 C1 (*) ES1501X Critical Thinking and Expository Writings* 4 C1 EG1108 Electrical Engineering 3 C1 EG1109M Statics and Mechanics of Materials 4 C1 CS1010E Programming Methodology 4 C1 MF2103 Engineering Visualisation and Modelling 3 C1 FASS Level-1000 Exposure module x1 4 C2 (*) FASS Single Major (Economics) Module 1 4 C2 GFR1000 Quantitative Reasoning (GE 1 - QR)* 4 CA GF.2* 4 CA Sub-Total 23 Sub-Total 23 Sub-Total 23 Vara 2 Semester 3 MCs Semester 4 MCs MCs </th <th>Year 1</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> | Year 1 | | | | | | | |
|---|--|-----|----|-----|--|---|-----|----|
| C1 Physics IE | Semester 1 | MCs | | | Semester | 2 | MCs | |
| CS FASS Electrical Engineering 3 C1 EG 109M Statics and Mechanics of Materials 4 C1 CS C1 CS C1 CS C1 CS CS | MA1505 Mathematics I ² | 4 | CA | (*) | MA1506 | Mathematics II ² | 4 | CA |
| CS1010E Programming Methodology | PC1431 Physics IE | 4 | C1 | (*) | ES1501X | Critical Thinking and Expository Writing ³ | 4 | C1 |
| FASS Level-1000 Exposure module x1 | EG1108 Electrical Engineering | 3 | C | 21 | EG1109M | I Statics and Mechanics of Materials | 4 | C1 |
| CA CA CA CA CA CA CA CA | CS1010E Programming Methodology | 4 | C | 21 | ME2103 | Engineering Visualisation and Modelling | 3 | C1 |
| Sub-Total 23 Sub-Total 24 C1 ME2114 Mechanics of Materials II 3 C1 ME2121 Engineering Thermodynamics 4 C1 ME2135 Fluid Mechanics II 4 C1 ME2136 Materials II 4 C1 ME2136 Mechanics of Materials II 4 C1 ME2136 Mechanics of Machines 4 C1 ME2137 Mechanics of Machines 4 C1 ME2136 Mechanics of Machines 4 C1 ME2136 Mechanics of Machines 4 C2 ME2137 Mechanics of Machines 4 C3 ME2137 Mechanics of Machines 4 C4 ME2137 Mechanics of Machines 4 C4 C4 ME2137 Mechanics of Machines 4 C4 C4 ME2137 Mechanics of Machines 4 C4 C5 ME2137 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C] 2 ME2132 Heat Transfer 4 C1 ME2132 Mechanical Elective 1 4 C1 ME2132 Mechanical Machines 4 C2 ME2132 Mechanical Elective 1 4 C1 ME2132 Mechanical Machines 4 C2 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 5 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 C4 C4 C4 C4 C4 C4 C4 | FASS Level-1000 Exposure module x1 | 4 | C2 | (*) | FASS Sing | gle Major (Economics) Module 1 | 4 | C2 |
| Name | GER1000 Quantitative Reasoning (GE 1 - QR) | 4 | C | ŹΑ | GE 2 ¹ | | 4 | CA |
| MCs Semester 3 MCs Semester 4 MCs | Sub-Total | 23 | | | Sub-Tota | 1 | 23 | |
| ME2113 Mechanics of Materials I 3 C1 ME2101 Fundamentals of Mechanical Design 4 C1 ME2121 Engineering Thermodynamics 4 C1 ME2114 Mechanics of Materials II 3 C1 ME2135 Fluid Mechanics II 4 C1 ME2136 Mechanics II 4 C1 ME2143 Sensors and Actuators 4 C1 ME2142 Sensors and Actuators 4 C2 ME23 Sensors and Actuators 4 C1 ME2142 Sensors and Actuators 4 C2 ME23 Sensors and Actuators 4 C1 ME2142 Sensors and Actuators 4 C3 ME23 Sensors and Actuators 4 C3 ME23 Sensors and Actuators 4 C3 Sensors and Actuators 4 C3 Sensors and Actuators 4 C3 Sensors | Year 2 | | | | | | | |
| ME2121 Engineering Thermodynamics 4 C1 ME2114 Mechanics of Materials II 3 C1 ME2134 Fluid Mechanics I 4 C1 ME2135 Fluid Mechanics II 4 C1 ME2151 Principles of Mechanical Engineering Materials 4 C1 ME2143 Sensors and Actuators 4 C1 ME3162 Manufacturing Processes (BEng Module as shown in Table D) 4 CA ME3112 Mechanics of Machines 4 C1 GE 3¹ 4 CA GE 4¹ 4 CA Sub-Total 23 Sub-Total 23 Sub-Total 23 Year 3 ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C]² 4 CA ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C]² 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 5 4 C2 | Semester 3 | M | Cs | | Semester | 4 | MCs | |
| ME2134 Fluid Mechanics I 4 C1 ME2135 Fluid Mechanics II 4 C1 ME2143 Sensors and Actuators 4 C1 ME2143 Sensors and Actuators 4 C1 ME2143 Sensors and Actuators 4 C1 ME2142 Mechanics of Machines 4 C1 ME2142 Mechanics of Machines 4 C1 ME2143 Sensors and Actuators 4 C1 ME2142 Mechanics of Machines 4 C1 ME2142 Mechanics of Machines 4 C1 ME2142 Mechanics of Machines 4 CA ME3112 Mechanics of Machines 4 CA ME3122 Mechanics of Machines 4 CA | ME2113 Mechanics of Materials I | 3 | 3 | C1 | ME2101 | Fundamentals of Mechanical Design | 4 | C1 |
| ME2151 Principles of Mechanical Engineering Materials 4 C1 ME2143 Sensors and Actuators 4 C1 ME3162 Manufacturing Processes (BEng Module as shown in Table D) 4 CA ME3112 Mechanics of Machines 4 C1 GE 3¹ 4 CA GE 4¹ 4 CA Sub-Total 23 Sub-Total 23 Sub-Total 23 Year 3 Semester 5 MCs Semester 6 MCs MCs ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C]² 4 CA ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C]² 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 CA | ME2121 Engineering Thermodynamics | 4 | 4 | C1 | ME2114 | Mechanics of Materials II | 3 | C1 |
| Materials ME3162 Manufacturing Processes (BEng Module as shown in Table D) 4 CA ME3112 Mechanics of Machines 4 C1 GE 3¹ 4 CA GE 4¹ 4 CA Sub-Total 23 Sub-Total 23 Year 3 Semester 5 MCs Semester 6 MCs ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C]² 4 CA ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C]² 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA | ME2134 Fluid Mechanics I | 4 | 4 | C1 | ME2135 | Fluid Mechanics II | 4 | C1 |
| GE 3 | | 4 | 4 | C1 | ME2143 | Sensors and Actuators | 4 | C1 |
| Sub-Total 23 Sub-Total 23 Year 3 Year 3 Semester 5 MCs Semester 6 MCs ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C] 2 4 CA ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA | | 4 | 4 | CA | ME3112 | Mechanics of Machines | 4 | C1 |
| Semester 5 MCs Semester 6 MCs ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C] 2 ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 Singapore Studies 4 CA Singapore Studies C1 C2 C3 Singapore Studies C2 C3 C4 Singapore Studies C4 C4 ME3103 Mechanical Systems Design MCs MCs MCs MCs MCs C4 C4 C5 C4 C6 C7 C7 C7 C8 C2 C8 C2 C9 C4 C9 C9 C9 C9 C9 C9 C9 C9 | GE 3 ¹ | 4 | 4 | CA | GE 4 ¹ | | 4 | CA |
| Semester 5 MCs Semester 6 MCs ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C] 2 4 CA ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA | Sub-Total | 2 | 23 | | Sub-Total | | 23 | |
| ME3103 Mechanical Systems Design 6 C1 SC2202 Sociology of Work or SC1101E Making Sense of Society (replaces HR2002)[Table C] 2 ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 C3 FASS Single Major (Economics) Module 5 C4 C2 FASS Single Major (Economics) Module 5 C5 Singapore Studies | Year 3 | | | | | | | |
| ME3122 Heat Transfer 4 C1 ME2142 Feedback Control Systems 4 C1 PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 FASS Single Major (Economics) Module 2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C3 Singapore Studies | Semester 5 | M | Cs | | Semester | 6 | MCs | |
| PH2223 Introduction To The Philosophy Of Technology (replaces EG2401)[Table C] 2 FASS Single Major (Economics) Module 2 FASS Single Major (Economics) Module 3 4 CA B.Eng. Technical Elective 1 4 C1 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA CA | ME3103 Mechanical Systems Design | (| 6 | C1 | SC2202 | Sense of Society (replaces HR2002)[Table | 4 | CA |
| Technology (replaces EG2401)[Table C] ² FASS Single Major (Economics) Module 2 4 C2 FASS Single Major (Economics) Module 4 4 C2 FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA | ME3122 Heat Transfer | 4 | 4 | C1 | ME2142 | Feedback Control Systems | 4 | C1 |
| FASS Single Major (Economics) Module 3 4 C2 FASS Single Major (Economics) Module 5 4 C2 Singapore Studies 4 CA | Technology | 2 | 4 | CA | B.Eng. Te | chnical Elective 1 | 4 | C1 |
| Singapore Studies 4 CA | FASS Single Major (Economics) Module 2 | 4 | 4 | C2 | FASS Sing | gle Major (Economics) Module 4 | 4 | C2 |
| | FASS Single Major (Economics) Module 3 | 4 | 4 | C2 | 2 FASS Single Major (Economics) Module 5 | | 4 | C2 |
| Sub-Total 22 Sub-Total 24 | | | | | Singapore Studies | | 4 | CA |
| | Sub-Total | 2 | 22 | | Sub-Tota | 1 | 24 | |

| Year 4 | | | | | |
|--|-----|----|--|-----|----|
| Semester 7 | MCs | | Semester 8 | MCs | |
| ME4101A B.Eng. Dissertation | 4 | CA | ME4101A B.Eng. Dissertation | 4 | CA |
| B.Eng. Technical Elective 2 | 4 | C1 | Any <u>one</u> B.A. (Econs) Module as shown in Table D | 4 | CA |
| FASS Single Major (Economics) Module 6 | 4 | C2 | FASS Elective Module (Any Level) x 2 | 8 | C2 |
| FASS Elective Module (Any Level) | 4 | C2 | FASS Elective Module (Level 3000) | 4 | C2 |
| FASS Elective Module (Level 3000) | 4 | C2 | | | |
| Sub-Total | 20 | | Sub-Total | 20 | |
| Total MCs | 180 | | | | |

Notes:

- (*) C1 Counted as B.Eng. degree requirement; C2 Counted as 2^{nd} degree requirement; CA Double-counted as both degree requirements.
- 1) Students are strongly encouraged to complete all the five GE modules latest by the end of Year 2.
- 2) Common module that also satisfies FASS Single Major (Economics) Foundation Module requirements.
- 3) DDP students are encouraged to read ES1501X. However, in the event that students are not able to get ES1501X, they have to read GET1021 + ES2331 or IEM1201X + IEM2201X (For UTown Students)

Table C: List of 20 MCs of Common Modules, Contributing to FASS Requirements

MA1505 Mathematics I MA1506 Mathematics II PH2208 Applied Ethics (fulfils the FoE requirement for the 3 MC EG2401 Engineering Professionalism*) These four modules are accepted in lieu of the FASS Faculty exposure requirements. They involve some social science and some humanities. Students must also complete 4 MCs of exposure modules from Asian Studies as part of the FASS requirements. SC2202 Sociology of Work OR SC1101E Making Sense of Society (fulfils the FoE requirement for the 3 MC HR2002 Human Capital in Organizations*)

Table D: B.Eng. & B.A. modules that may be considered as common modules

| B.Eng. Programme | B.Eng. modules that can be counted towards B.AEconomics major requirements* | B.A Economics modules that can be counted towards B.Eng. requirements* | | |
|---------------------------|---|--|--|--|
| Mechanical Engineering | ME3162 Manufacturing Processes (Cost of Production) ME4262 Automation in manufacturing (economic cost-benefit analysis of automation) EE4305 Introduction to Fuzzy/Neural Systems | EC3322 Industrial Organisation I EC4372 Technology & Innovation EC4322 Industrial Organisation II EC5324 Economics & Cost Benefit Analysis | | |

^{*}These 16 MCs of common modules replace 14 MCs in the B.Eng.(Hons.) Programme requirements.