## B.Eng (Hons) in Chemical and Biomolecular Engineering with 2nd Major in Business (International Trading)

with Professional Internship

AY2025 - 2026 Intake onwards CBBM(ITG)

|                  |         | Number of Academic Units (AU) |                |                     |                             |                             |                                 |       |  |
|------------------|---------|-------------------------------|----------------|---------------------|-----------------------------|-----------------------------|---------------------------------|-------|--|
| Programme        | Year of | Major Req                     | uirement       | Interdisc           | iplinary Coll<br>Core       | aborative                   | Broadening<br>and               | Total |  |
|                  | Study   | Core<br>(C)                   | Major PE (MPE) | Common<br>Core (CC) | Professional<br>Series (PS) | Care, Serve,<br>Learn (CSL) | Deepening<br>Electives<br>(BDE) | TOtal |  |
| Chemical &       | 1       | 24                            |                | 6                   |                             |                             | 6                               | 36    |  |
| Biomolecular     | 2       | 28                            |                | 8                   | 3                           |                             | 11                              | 50    |  |
| Engineering with | 3       | 17                            |                |                     | 11                          |                             | 6                               | 34    |  |
| Second Major in  | 4       | 8                             | 6              |                     | 2                           | 3                           | 8                               | 27    |  |
| Business - ITP   | Total   | 77                            | 6              | 14                  | 16                          | 3                           | 31                              | 147   |  |

78\* 148\*

| Category           |           |  | AU                     | Total AU |
|--------------------|-----------|--|------------------------|----------|
|                    | Common    | Core (CC)  |                        |          |
|                    | CC0001    | Inquiry and Communication in the Interdisciplinary World   | 2                      |          |
|                    | CC0003    | Ethics & Civics in a Multi-Cultural World  | 2                      |          |
|                    | CC0006    | Sustainability: Society, Economy & Environment   | 3                      |          |
|                    | CC0007    | Science & Technology for Humanity  | 3                      | 14       |
|                    | CC0015    | Health & Wellbeing   | 2                      |          |
|                    | ML0004    | Career Design & Workplace Readiness in the V.U.C.A<br>World  | 2                      |          |
| Interdisciplinary  |           |  |                        |          |
| Collaborative Core | Professio | nal Series (PS)  |                        |          |
| (100)              | CB0494    | Introduction to Data Science and Artificial Intelligence   | al Intelligence 3 2 16 |          |
|                    | HW0288    | 194 Introduction to Data Science and Artificial Intelligence 288 Engineering Communication 28XX Professional Preparation 3 | 2                      | 16       |
|                    | MLXXXX    |  | 1                      |          |
|                    | CH3920    | Professional Internship  | 10                     |          |
|                    |           |  |                        |          |
|                    | Care, Ser | vice, Learn (CSL)  |                        |          |
|                    |           | Service Learning   | 3                      | 3        |
|                    |           |  |                        |          |
|                    | CBE Core  |  |                        |          |
|                    | EG1001    | Engineers In Society   | 2                      |          |
|                    | MH1810    | Math 1   | 3                      |          |
| Major              | PH1011*   | Physics  | 3                      | 22       |
| Requirement        | CB1102    | Introduction to Chemical and Biomedical Engineering  | 1                      | 22       |
|                    | CB1103    | Organic Chemistry For Engineers  | 3                      |          |
|                    | CB1117    | Engineering Mathematics  | 4                      |          |
|                    | CB1131    | Introduction to Biomolecular Engineering   | 3                      |          |
|                    | CH1104    | Materials & Energy Balance   | 3                      |          |

| otal                 | 12.0220  |  |              | 147 |
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|                      | 12:0220  |  | <del>_</del> |     |
|                      | BF3226   | Strategic Management in Commodity Market   | 2            | I   |
|                      | BF3214   | Commodities Trading  | 2            |     |
|                      | BF3213   | Enterprise Risk Management in Commodity  | 2            |     |
|                      | BF3212   | Trade, Structured & Supply Chain Finance   | 2            |     |
| Trading (BDEs)       | BF2302   | International Tax & Trading Law  | 2            |     |
| International        | BF2227   | Commodity Markets  | 3            |     |
| Business -           | BF2226   |  |              | 31  |
| 2nd Major in         | BE1402   | •  |              |     |
|                      | AD2102   | Management Accounting  |              |     |
|                      | AD1102   | Financial Accounting   | 3            |     |
|                      | AB1501   | Marketing  | 3            |     |
|                      | AB1201   | Financial Management   | 3            |     |
|                      | Business | (ITP) Courses  |              |     |
|                      | CRF Majo | or Prescribed Electives (IMPE)   |              | 6   |
|                      | CDE MA-: | ur Dungarilla di Floatiuse (NADE)  |              |     |
|                      | CH4801   | Final Year Design Project  | 8            |     |
|                      | CH3802   | CH3802 Chemical & Biomolecular Engineering Laboratory 5  | 3            |     |
|                      | C113140  |  |              |     |
|                      | CH3140   | -  |              |     |
|                      | CH3121   | · · · · · · · · · · · · · · · · · · ·  | 2            |     |
|                      | CH3111   |  |              |     |
|                      | CH3104   |  |              |     |
| Major<br>Requirement | CH3104   | Laboratory 2B  Biochemical Engineering   |              |     |
|                      | CH2802   | Chemical & Biomolecular Engineering  | 2            |     |
| Major                | CH2801   | Laboratory 1A Chemical & Biomolecular Engineering Laboratory 2 Engineering Statistics Fluid Systems Introduction to Computational Thinking Thermodynamics Chemical Reaction Engineering Heat & Mass Transfer in Chemical and Biological Systems Chemical Thermodynamics Chemical Thermodynamics Chemical Thermodynamics Chemical Biomolecular Engineering Laboratory 2A Chemical & Biomolecular Engineering Laboratory 2B Biochemical Engineering Biochemical Engineering Chemical, Biological & Plant Safety Unit Operations: Fluid-Fluid Separation Chemical, Biological & Plant Safety  Unit Operations: Fluid-Fluid Separation Chemical & Biomolecular Engineering Baboratory 5 Final Year Design Project  Prescribed Electives (MPE)  P) Courses Financial Management Marketing Financial Accounting Management Accounting Management Accounting Business Operations & Process Trade Incoterms & Ship Chartering  3 1 1 2 1 2 3 4 4 5 7 5 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 |              |     |
| Major                | CH2151   | Unit Operations: Fluid-Solid Separation  | 3            |     |
|                      | CH2123   | Chemical Thermodynamics  | 3            |     |
|                      | CH2114   | Heat & Mass Transfer in Chemical and Biological Systems  | 3            |     |
|                      | CH2112   | Chemical Reaction Engineering  | 3            |     |
|                      | CH2108   | Thermodynamics   |              |     |
|                      | CH2107   | Introduction to Computational Thinking   | 3            |     |
|                      | CH2103   | Fluid Systems  | 3            |     |
|                      | CH2010   | Engineering Statistics   | 3            |     |
|                      | CH1802   | Laboratory 2   | 1            |     |
|                      |          | Chemical & Biomolecular Engineering  |              |     |
|                      | CH1801   | Laboratory 1A  | 1            |     |
|                      | CU1001   | Chemical & Biomolecular Engineering  | 4            |     |

<sup>148\*</sup> 

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

| <i>vith Prof</i><br>∕ear 1 S   | emester 1   |  |  | Year 1                               | Semester 2  |                     |   |
|--|---|--|--|--------------------------------------|---|---------------------|---|
| ourse  |   | Туре                                   | AU   | Course                               |   | Туре                |   |
| B1102  | Introduction to Chemical and Biomedical<br>Engineering  | С                                      | 1  | CB1103                               | Organic Chemistry For Engineers   | С                   |   |
| 3G1141   | Cellular & Molecular Biology for Bioengineers   | С                                      | 3  | CB1117                               | Engineering Mathematics   | С                   |   |
| 3G1801   | Bioengineering Lab 1A   | С                                      | 1  | BG1802                               | P. Bioengineering Lab 1B  | С                   |   |
| ИН1810   | Math 1  | С                                      | 3  | EG1001                               | Engineers in Society  | С                   |   |
| PH1011   | Physics   | С                                      | 3  | CC0003                               | B Ethics & Civics in a Multi-Cultural World   | СС                  |   |
|  | <u>or</u>   |  |  | CC0015                               | 5 Health & Wellbeing  | CC                  |   |
| PH1012   | Physics A (* For students without 'A' Level Physics)  | С                                      | 4  | AB1501                               | Marketing   | BDE                 |   |
| CC0001   | Inquiry and Communication in the  | СС                                     | 2  |                                      |   |                     |   |
|  | Interdisciplinary World   |  |  |                                      |   |                     |   |
| AB1201   | Financial Management  | BDE                                    | 3  |                                      |   |                     |   |
|  |   |  | 16   | 7                                    |   |                     |   |
| /oar 2 S   | semester 1  |  |  | Voor 2                               | Semester 2  |                     |   |
| rear 2 S<br>Course   | emester i   | Туре                                   | AU   | Year 23                              |   | Туре                |   |
| 3G2119   | Anatomy and Physiology  | C                                      | 3  | BG2103                               |   | C                   |   |
| 3G2131   | Biomaterials  | С                                      | 3  | BG2104                               | Electronics for Biomedical Engineering  | С                   |   |
| 3G2142   | Biological Thermodynamics   | С                                      | 3  | BG2110                               | ) Bioelectricity  | С                   |   |
| 3G2211   | Introduction to Computational Thinking  | C                                      | 3  | BG2209                               | •   | C                   |   |
| 3G2801   | Bioengineering Lab 2A   | С                                      | 1  | BG2802                               | P. Bioengineering Lab 2B  | С                   |   |
| ML0004   | Career Design & Workplace Readiness in the V.U.C.A World  | CC                                     | 2  | CB2002                               | Introduction to Chemical and Biological Safety  | С                   |   |
| CC0006   | Sustainability: Society, Economy & Environment  | CC                                     | 3  | CC0007                               | Science & Technology for Humanity   | CC                  |   |
| AD1102   | Financial Accounting  | BDE                                    | 3  | BE1402                               | •   | BDE                 |   |
| BF2227   | Commodity Markets   | BDE                                    | 3  | BF3214                               | Commodities Trading   | BDE                 |   |
|  |   |  | 24   |                                      |   |                     |   |
| Year 3 S   | emester 1   |  |  | Year 3                               | Semester 2  |                     |   |
| Course   |   | Type                                   | AU   | Course                               |   | Type                |   |
| 202100   | Control in Biosystems   | С                                      | •  | BG3920                               | Professional Internship   | PS                  |   |
|  | •   | _                                      | 3  |                                      |   |                     |   |
| BG3102<br>BG3104   | Biomedical Imaging  | С                                      | 3  |                                      |   |                     |   |
|  | Biomedical Imaging Biomedical Instrumentation   | C<br>C                                 |  |                                      |   |                     |   |
| BG3104<br>BG3105   | Biomedical Imaging<br>Biomedical Instrumentation<br>Cardiovascular Engineering  | С                                      | 3  |                                      |   |                     |   |
| BG3104<br>BG3105<br>BG3112<br>BG3801   | Biomedical Imaging<br>Biomedical Instrumentation<br>Cardiovascular Engineering  | C<br>C                                 | 3<br>3<br>3  |                                      |   |                     |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication   | C<br>C                                 | 3<br>3<br>3<br>1   |                                      |   |                     |   |
| 8G3104<br>8G3105<br>8G3112<br>8G3801<br>HW0288   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation  | C<br>C<br>C<br>PS                      | 3<br>3<br>3<br>1   |                                      |   |                     |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation  | C<br>C<br>C<br>PS                      | 3<br>3<br>3<br>1<br>2  |                                      |   |                     |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting  | C<br>C<br>C<br>PS<br>PS<br>BDE         | 3<br>3<br>3<br>1<br>2<br>1<br>3  |                                      |   |                     | - |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting  | C<br>C<br>C<br>PS<br>PS<br>BDE         | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3   |                                      | Semester 2  |                     | _ |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  | C<br>C<br>C<br>PS<br>PS<br>BDE         | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3   | Year 4 s<br>Course                   |   | Туре                | _ |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Elemester 1  Machine Learning and Optimization for  | C<br>C<br>C<br>PS<br>PS<br>BDE<br>BDE  | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>3  | Course                               |   | Type<br>C           | _ |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>D2102<br>3F2226<br>Year 4 S<br>Course                                | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication C Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers  | C<br>C<br>C<br>PS<br>PS<br>BDE<br>BDE  | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3   | Course                               | P. Medical Device Design  |                     | _ |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>MD2102<br>3F2226<br>Gear 4 S<br>Course<br>3G4104                     | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication C Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers  | C C C PS PS BDE BDE                    | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>22<br>AU   | Course<br>BG4122                     | P. Medical Device Design  | С                   | _ |
| GG3104<br>GG3105<br>GG3112<br>GG3801<br>HW0288<br>MLXXXX<br>D2102<br>FF2226<br>Gear 4 S<br>Course<br>GG4104                      | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers Medical Device Design Final Year Project   | C C C PS BDE BDE                       | 3 3 3 1 2 1 3 3 3 2 2 2 AU 3 3 3   | Course<br>BG4122                     | P. Medical Device Design  Final Year Project  BIE PE 2  Introduction to Data Science and  | C<br>C              |   |
| GG3104<br>GG3105<br>GG3112<br>GG3801<br>HW0288<br>MLXXXX<br>D2102<br>FF2226<br>Gear 4 S<br>Course<br>GG4104                      | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Femester 1  Machine Learning and Optimization for Bioengineers Medical Device Design  | C C C PS BDE BDE C C C C C             | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>22<br>AU   | Course<br>BG4122<br>BG4801           | Medical Device Design     Final Year Project     BIE PE 2     Introduction to Data Science and     Artificial Intelligence     Trade, Structured and Supply Chain     | C<br>C<br>MPE       |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226   | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers Medical Device Design Final Year Project  BIE PE 1   | C C C PS PS BDE BDE C C C C C MPE      | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>22<br>AU<br>3<br>3<br>4<br>3                         | Course<br>BG4122<br>BG4801<br>CB0494 | Medical Device Design     Final Year Project     BIE PE 2     Introduction to Data Science and Artificial Intelligence     Trade, Structured and Supply Chain Finance | C<br>C<br>MPE<br>PS |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226<br>Year 4 S<br>Course<br>3G4104<br>3G4122<br>3G4801 | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Cardiovascular Engineering Bioengineering Communication Cardiovascular Engineering Engineering Communication Cardiovascular Engineering Management Accounting Trade Incoterms and Ship Chartering  Incoterms and Ship Chartering  Incoterms and Optimization for Bioengineers Medical Device Design Final Year Project  BIE PE 1 Service Learning | C C C PS BDE BDE C C C C C MPE CSL     | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>22<br>AU<br>3<br>3<br>4<br>3<br>3                    | Course BG4122 BG4801 CB0494 BF3212   | Medical Device Design     Final Year Project     BIE PE 2     Introduction to Data Science and Artificial Intelligence     Trade, Structured and Supply Chain Finance | C<br>C<br>MPE<br>PS | _ |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>ND2102<br>3F2226<br>Gear 4 S<br>Course<br>3G4104<br>3G4122<br>3G4801 | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers Medical Device Design Final Year Project  BIE PE 1 Service Learning International Tax and Trading Law  | C C C PS BDE BDE C C C C C MPE CSL BDE | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>3<br>2<br>2<br>2                                     | Course BG4122 BG4801 CB0494 BF3212   | Medical Device Design     Final Year Project     BIE PE 2     Introduction to Data Science and Artificial Intelligence     Trade, Structured and Supply Chain Finance | C<br>C<br>MPE<br>PS |   |
| 3G3104<br>3G3105<br>3G3112<br>3G3801<br>HW0288<br>MLXXXX<br>AD2102<br>3F2226<br>Year 4 S<br>Course<br>3G4104<br>3G4122<br>3G4801 | Biomedical Imaging Biomedical Instrumentation Cardiovascular Engineering Bioengineering Lab 3 Engineering Communication Professional Preparation Management Accounting Trade Incoterms and Ship Chartering  Machine Learning and Optimization for Bioengineers Medical Device Design Final Year Project  BIE PE 1 Service Learning International Tax and Trading Law  | C C C PS BDE BDE C C C C C MPE CSL BDE | 3<br>3<br>3<br>1<br>2<br>1<br>3<br>3<br>2<br>2<br>AU<br>3<br>3<br>4<br>3<br>3<br>4<br>3<br>2 | Course BG4122 BG4801 CB0494 BF3212   | Medical Device Design     Final Year Project     BIE PE 2     Introduction to Data Science and Artificial Intelligence     Trade, Structured and Supply Chain Finance | C<br>C<br>MPE<br>PS |   |