## **MATERIALS SCIENCE & ENGINEERING - Single Honours**

Single Honours Degree Requirements	MCs	Remarks	Classification
(A) University Level Requirements			
General education modules:			
GER1000 Quantitative Reasoning	4		CA
GEQ1000 Asking Questions	4	Only 1 set needs to be completed for both BEng and BBA	CA
GET	4	degrees. May be replaced by selected USP, RVRC or UTCP	CA
GEH GEH	4	modules.	CA
GES	4		CA
Sub-total for University Level Requirements	20		
B) Engineering Programme Requirements			
aculty requirements:			
G2401A Engineering Professionalism	2		C1
oundation requirements:			_
MLE1001A Materials Science & Engineering Principles & Practice I	4		C1
MLE2001 Materials Science & Engineering Principles & Practice II	4		C1
MA1512 Differential Equations for Engineering	2		C1
MA1513 Linear Algebra with Differential Equations	2		C1
·	4		C1
CS1010E Programming Methodology	4		
E2211 Introduction to Machine Learning			C1
G1311 Design and Make	4		C1
E2141 Systems Thinking and Dynamics	4		C1
MLE1010 Materials Engineering Principles & Practices	4		C1
ASE core modules:			
M1501 Organic Chemistry for Engineers	4		C1
C1432 Physics IIE	4		C1
ILE2101 Introduction to Structure of Materials	4		C1
ALE2102 Thermodynamics and Phase Diagrams	4		C1
ALE2103 Phase Transformation and Kinetics	4		C1
MLE2104 Mechanical Properties of Materials	4		C1
MLE2105 Electronic Properties of Materials	4		C1
MLE3101 Materials Characterization Laboratory	4		C1
ALE3111 Materials Properties & Processing Laboratory	4		C1
MSE project and internship modules:			
//LE4101 B.Eng. Dissertation (12 MCs)			
r MLE4101A B.Eng. Dissertation (6 MCs)		Students should take one of the following combinations:	C1
MLE4102 Design Project (4 MCs)	14 or 16	<ul> <li>MLE4101 (12 MCs) + MLE4102 (4 MCs)</li> </ul>	
r MLE4102 Design Project (4 MCs)		<ul> <li>MLE4101A (6 MCs) + MLE4102A (8 MCs)</li> </ul>	C1
G3611A Industrial Attachment		Evampted for DDD students	
	-	Exempted for DDP students	-
MSE pathway requirements and electives:			C4
MSE pathway requirement 1	4	Pathway requirement 2 is counted as Common Module.	C1
Sub-total for Engineering Programme Requirements	88 or 90		
C) Business Programme Requirements			
Business preparatory modules:			
3PM1701 Calculus and Statistics	0	These modules must be completed within the first semester	-
3PM1702 Microsoft Excel Skills for Business	0	after matriculation or first semester of commencing the DDP	-
3PM1705 Understanding How Business Works	0	for mid-stream DDP students.	-
TR1000 Career Creation Starter Workshops	0		-
TR2000 Career Creation Starter Clinics	0		-
Night of the second control of the second co		May be fulfilled through student exchange, overseas	
Global Immersion and Study	-	internship, case competition, or study trip.	-
BBA core modules:			
CC1701 Accounting for Decision Makers	4		C2
SSP1702 Legal Environment of Business	4		C2
ISP1703 Managerial Economics	4		
			C2
			C2
SP2701 Global Economy	2		C2
SP2701 Global Economy SP3701 Strategic Management	2 4		C2 C2
ISP2701 Global Economy ISP3701 Strategic Management IAO1704 Desicion Analytics Using Spreadsheets	2 4 4		C2 C2 C2
SP2701 Global Economy SP3701 Strategic Management AO1704 Desicion Analytics Using Spreadsheets AO2702 Programming for Business Analytics	2 4 4 4		C2 C2 C2 C2
ISP2701 Global Economy ISP3701 Strategic Management IAO1704 Desicion Analytics Using Spreadsheets IAO2702 Programming for Business Analytics IAO2703 Operations and Technology Management	2 4 4 4 4 4		C2 C2 C2 C2 C2
ISP2701 Global Economy ISP3701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management IN2704 Finance	2 4 4 4 4 4		C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP3701 Strategic Management ISP3701 Strategic Management ISP3701 Strategic Management ISP3704 Desicion Analytics Using Spreadsheets ISP3704 Programming for Business Analytics ISP3704 Operations and Technology Management IN2704 Finance IMXT1705 Principles of Marketing	2 4 4 4 4 4 4		C2 C2 C2 C2 C2 C2 C2
SSP2701 Global Economy SSP3701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour	2 4 4 4 4 4 4 4		C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP3701 Strategic Management ISP3701 Strategic Management ISP3701 Strategic Management ISP3704 Desicion Analytics Using Spreadsheets ISP3702 Programming for Business Analytics ISP3703 Operations and Technology Management ISP3704 Finance INETT705 Principles of Marketing INO1706 Organisational Behaviour INO2705 Leadership and Decision Making under Uncertainty	2 4 4 4 4 4 4		C2 C2 C2 C2 C2 C2 C2
SSP2701 Global Economy SSP3701 Strategic Management SAO1704 Desicion Analytics Using Spreadsheets SAO2702 Programming for Business Analytics SAO2703 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty	2 4 4 4 4 4 4 4		C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP3701 Strategic Management ISP3701 Strategic Management ISP3701 Strategic Management ISP3701 Strategic Management ISP3704 Pesicion Analytics Using Spreadsheets ISP3704 Programming for Business Analytics ISP3704 Programming Management ISP3704 Principles of Marketing ISP3705 Principles of Marketing ISP3705 Principles of Marketing ISP3705 Leadership and Decision Making under Uncertainty ISP388 Electives / specialisation modules:	2 4 4 4 4 4 4 4 4	It is not compulsory for DDP students to do a specialization	C2 C2 C2 C2 C2 C2 C2 C2 C2
3SP2701 Global Economy 3SP3701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management IN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules:	2 4 4 4 4 4 4 4	It is not compulsory for DDP students to do a specialisation,	C2 C2 C2 C2 C2 C2 C2 C2 C2
3SP2701 Global Economy 3SP2701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management IN2704 Finance WKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules:	2 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP2701 Strategic Management JA01704 Desicion Analytics Using Spreadsheets JA02702 Programming for Business Analytics JA02703 Operations and Technology Management IN2704 Finance MKT1705 Principles of Marketing MN01706 Organisational Behaviour MN01706 Leadership and Decision Making under Uncertainty ISBA electives / specialisation modules:	2 4 4 4 4 4 4 4 4		C2 C2 C2 C2 C2 C2 C2 C2 C2
SP2701 Global Economy SP3701 Strategic Management AD01704 Desicion Analytics Using Spreadsheets AD02702 Programming for Business Analytics AD02703 Operations and Technology Management IN2704 Finance AKT1705 Principles of Marketing ANO1706 Organisational Behaviour ANO2705 Leadership and Decision Making under Uncertainty ABA electives / specialisation modules: BBA elective 1  BBA elective 2	2 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy SP3701 Strategic Management Ac01704 Desicion Analytics Using Spreadsheets Ac02702 Programming for Business Analytics Ac02702 Programming for Business Analytics Ac02703 Operations and Technology Management IN2704 Finance AKC1705 Principles of Marketing MNO1706 Organisational Behaviour ANO1706 Leadership and Decision Making under Uncertainty ABA electives / specialisation modules: BBA elective 1 BBA elective 2  ub-total for Business Programme Requirements	2 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP2701 Strategic Management JA01704 Desicion Analytics Using Spreadsheets JA02702 Programming for Business Analytics JA02703 Operations and Technology Management IN2704 Finance JKT2705 Principles of Marketing JMO1706 Organisational Behaviour JMO2705 Leadership and Decision Making under Uncertainty JBA electives / specialisation modules: JBA elective 1 JBA elective 2 JBBA elective 2 JBBA elective 2 JBBA elective Requirements	2 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP2701 Strategic Management ISP2701 Strategic Management ISP2701 Strategic Management ISP2704 Desicion Analytics Using Spreadsheets ISP2704 Desicion Analytics ISP2704 Programming for Business Analytics ISP2704 Finance IMC1705 Principles of Marketing IMNO1706 Organisational Behaviour IMNO1706 Leadership and Decision Making under Uncertainty ISP28 A elective / specialisation modules: ISP28 A elective 1 ISP28 A elective 2 ISP28 A elective 3 ISP28 A elective 4 ISP28 A elective 5 ISP28 A elective 6 ISP28 A elective 7 ISP28 A elective 8 ISP28 A elective 9 ISP	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA).	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
3SP2701 Global Economy 3SP2701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management EIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO1706 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules: BBA elective 1 BBA elective 2 Sub-total for Business Programme Requirements D) Common Modules	2 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students),	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
3SP2701 Global Economy 3SP2701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management EIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO1706 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules: BBA elective 1 BBA elective 2 Sub-total for Business Programme Requirements D) Common Modules	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), ES1601 (for RVRC students), or UTW2001% (for UTCP	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
ISP2701 Global Economy ISP2701 Strategic Management ISP2701 Strategic Management ISP2701 Strategic Management ISP2704 Desicion Analytics Using Spreadsheets ISP2704 Desicion Analytics ISP2704 Programming for Business Analytics ISP2704 Finance IMC1705 Principles of Marketing IMNO1706 Organisational Behaviour IMNO1706 Leadership and Decision Making under Uncertainty ISP28 A elective / specialisation modules: ISP28 A elective 1 ISP28 A elective 2 ISP28 A elective 3 ISP28 A elective 4 ISP28 A elective 5 ISP28 A elective 6 ISP28 A elective 7 ISP28 A elective 8 ISP28 A elective 9 ISP	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces E52002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), E51601 (for RVRC students), or UTW2001% (for UTCP students).	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
SSP2701 Global Economy SSP3701 Strategic Management SAO21704 Desicion Analytics Using Spreadsheets DAO21702 Programming for Business Analytics DAO2703 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty SBA electives / specialisation modules: SBA elective 1 SBA elective 2 SBA elective 2 SBA elective 2 SBA elective 3 SBA Common Modules SS2531 Critical Thinking and Writing	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), ES1601 (for RVRC students), or UTW2001% (for UTCP students).  IE4240 Project Management	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2
SSP2701 Global Economy SSP3701 Strategic Management DAO1704 Desicion Analytics Using Spreadsheets DAO2702 Programming for Business Analytics DAO2703 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty SBA electives / specialisation modules: SBA elective 1 SBA elective 2 Sub-total for Business Programme Requirements D) Common Modules SS2531 Critical Thinking and Writing SEng module 1	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces E52002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), E51601 (for RVRC students), or UTW2001% (for UTCP students).	C2 C
38P2701 Global Economy 38P2701 Strategic Management DAOLTO4 Desicion Analytics Using Spreadsheets DAOLTO4 Programming for Business Analytics DAOLTO3 Programming for Business Analytics DAOLTO3 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MKO1706 Organisational Behaviour MKO2705 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules: BBA elective 1 BBA elective 2 BBA elective 2 BBA elective 2 BBA elective 3 BBA elective 4 BBA elective 5 BBA elective 6 BBA elective 7 BBA elective 8 BBA elective 9 BBA elective 9 BBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 3 BBBA elective 3 BBBA elective 4 BBBA elective 4 BBBA elective 5 BBBA elective 5 BBBA elective 6 BBBA elective 6 BBBA elective 7 BBBA elective 7 BBBA elective 8 BBBA elective 8 BBBA elective 9 BBBA	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), ES1601 (for RVRC students), or UTW2001% (for UTCP students).  IE4240 Project Management (This module is counted as MSE pathway requirement 2.)	C2 C
3SP2701 Global Economy 3SP3701 Strategic Management 3AO1704 Desicion Analytics Using Spreadsheets 3AO2702 Programming for Business Analytics 3AO2703 Operations and Technology Management 3EN2704 Finance MKT1705 Principles of Marketing MNO1706 Organisational Behaviour MNO2705 Leadership and Decision Making under Uncertainty 3BA electives / specialisation modules: 3BA elective 1 3BA elective 2 3BA elective 2 3BA elective 2 3BA elective 3 3BA elective 4 3BBA elective 5 3BBA elective 6 3BBA elective 7 3BBA elective 8 3BBA elective 9 3BBA elective 9 3BBA elective 1 3BBA elective 1 3BBA elective 1 3BBA elective 1 3BBA elective 2	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), ES1601 (for RVRC students), or UTW2001% (for UTCP students).  IE4240 Project Management	C2 C
38P2701 Global Economy 38P2701 Strategic Management DAOLTO4 Desicion Analytics Using Spreadsheets DAOLTO4 Programming for Business Analytics DAOLTO3 Programming for Business Analytics DAOLTO3 Operations and Technology Management SIN2704 Finance MKT1705 Principles of Marketing MKO1706 Organisational Behaviour MKO2705 Leadership and Decision Making under Uncertainty BBA electives / specialisation modules: BBA elective 1 BBA elective 2 BBA elective 2 BBA elective 2 BBA elective 3 BBA elective 4 BBA elective 5 BBA elective 6 BBA elective 7 BBA elective 8 BBA elective 9 BBA elective 9 BBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 2 BBBA elective 2 BBBA elective 1 BBBA elective 2 BBBA elective 3 BBBA elective 3 BBBA elective 4 BBBA elective 4 BBBA elective 5 BBBA elective 5 BBBA elective 6 BBBA elective 6 BBBA elective 7 BBBA elective 7 BBBA elective 8 BBBA elective 8 BBBA elective 9 BBBA	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	but those who wish take up a specialisation will need to complete 24 MCs of specialisation modules.  Replaces ES2002 Business Communication for Leaders (BBA). Can also be replaced by UWC2101% (for USP students), ES1601 (for RVRC students), or UTW2001% (for UTCP students).  IE4240 Project Management (This module is counted as MSE pathway requirement 2.)	C2 C