

DEPARTMENT OF MECHATRONICS AND SYSTEMS ENGINEERING

100 LEVEL FIRST SEMESTER COMMON COURSES

Course Code	Course Title	Credit Units	Pre-requisite
MTH 111	Elementary Algebra I	3	-
MTH 112	Calculus I	3	-
PHY 171	Basic Experimental Physics I	1	-
PHY 183	Introductory Mechanics and Properties of Matter	3	-
PHY 184	Introductory Heat and Sound	3	-
CHM 101	Foundation Chemistry I	4	-
GNS 101	Use of English I	2	-
GNS 201	Information Science	2	-
TOTAL UNITS		21	

100 LEVEL SECOND SEMESTER COMMON COURSES

Course Code	Course Title	Credit Units	Pre-requisite
MTH 121	Elementary Algebra II	4	
MTH 122	Calculus II	4	
PHY 172	Basic Experimental Physics II	1	
PHY 188	Introductory Electricity and Magnetism	3	
CHM102	Foundation Chemistry II	4	
GNS 102	Use of English II	2	
GNS202	Nigerian Peoples and Culture	2	
CS142	Introductory Computer Science	3	
TOTAL UNITS		23	

200 LEVEL FIRST SEMESTER COMMON COURSES

Course	Course Title	Credit Units	Pre-requisite
CE211	Strength of Materials I	2	
EE211	Electrical Engineering Fundamentals I	3	
ME211	Engineering Mechanics I	2	
ME212	Engineering Drawing I	2	
ME213	Thermo Sciences I	2	
ME214	Workshop Practice I	1	
MTH212	Mathematical Methods I	3	MTH122
GNS301	Entrepreneurship and Innovation	2	
ES217	Engineer in Society	2	
EG210	Engineering Laboratories I	3	
TOTAL UNITS		22	

In addition to these courses, **Direct Entry** students must register **GNS 101** and **GNS 201** from 100 Level courses.

200 LEVEL SECOND SEMESTER COMMON COURSES

Course Code	Course Title	Credit Units	Pre-requisite
CE222	Strength of Materials II	2	CE211
CE223	Engineering Hydromechanics	2	
EE222	Electrical Engineering Fundamentals II	3	EE211
ME222	Engineering Mechanics II	2	ME211
ME223	Engineering Drawing II	2	ME212
ME224	Thermo Sciences II	2	ME213
ME225	Workshop Practice II	1	
MTH222	Mathematical Methods II	3	MTH212
EG220	Engineering Laboratories II	3	
ME226	Materials Science	2	
GNS222	Peace & Conflict Resolution Studies	2	
TOTAL UNITS		24	

All Direct entry students should register **GNS 102** and **CS 142** from 100Level and drop GNS 222 and GNS 202, which should be registered next session.

At the end of the 200 level, all the students are expected to undertake the Students Work Experience Programme (SWEP) (**2 UNITS**) before proceeding to 300 level

1. MECHATRONICS ENGINEERING OPTION**300 LEVEL FIRST SEMESTER COURSES**

Course Title	Course Title	Credit Units	Pre-Requisite
MTH337	Numerical Analysis I	3	MTH222
EA311	Introduction to Engineering Statistics	3	
EE311	Circuit Theory I	3	EE211
EE312	Analogue Electronic Circuits	3	EE222
ME311	Dynamics of Machinery I	2	
ME312	Heat Transfer I	2	ME224
ME313	Engineering Drawing III	2	ME223
SCE313	Rigid Body Dynamics	3	
EE317	Electrical & Electronics Workshop	1	
MTE310	Mechatronics Engineering Laboratory I	1	
Total Units		23	

300 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Req
MTH323	Complex Analysis I	3	
EA321	Topics in Engineering Mathematics	2	
EE321	Electrical Machines I	4	

EE322	Digital Electronics	3	EE222
ME324	Production Technology I	3	
ME321	Dynamics of Machinery II	2	ME311
EE325	Electrical Machines Laboratory	1	
EE326	Digital Electronics Laboratory	1	
MTE320	Mechatronics Engineering Laboratory II	1	
GNS302	Business Creation and Growth	2	
Total Units		21	

At the end of the 300 level, all the students are expected to undertake the Students Industrial Work Experience Scheme (SIWES I) (**2 UNITS**) before proceeding to 400 level

400 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EA413	Computer Programming for Engineers	2	CS142
EE411	Control Engineering I	3	EE311
EE413	Digital Systems	3	
EE315	Measurements and Instrumentation	3	
ME413	Machine Design I	3	
ME415	Production Technology II	3	
EE417	Digital Electronics Laboratory	1	
EE418	Control Engineering Laboratory	1	
MTE410	Mechatronics Engineering Laboratory III	1	
ENG411	Engineering Technical Communication	2	
Total Units		22	

400 LEVEL SECOND SEMESTER COURSES

INDUSTRIAL TRAINING (IT) 4 CREDITS UNITS

Industrial linked assignments, under supervision by members of the University, are undertaken by students who have met the academic requirements to proceed on supervised industrial work experience scheme (SIWES). The following form the basis for assessment of the assignments.

- 1 Basic Industrial training
- 2 Design and Make Group Projects
- 3 Seminar on Group Project
- 4 Report on Group Project
- 5 Industrial Design Project
- 6 Report on Industrial design Project
- 7 Individual Seminar
- 8 Assessment by Individual Supervisor
- 9 Overall Assessment

500 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
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EE501	Control Engineering II	3	EE411
EE507	Digital Signal Processing	2	
MTE599	Project & Seminar	-	
EE511	Computer-Aided System Analysis & Design	3	
ME511	Machine Design II	3	ME413
SE511	Computer Structures & Real Time Systems	3	
MTE512	Electro-Mechanical Sensors & Actuators	2	
MTE513	Artificial Intelligence	2	
MTE510	Mechatronics Engineering Laboratory IV	2	
Total Units		20	

500 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EE523	System Reliability & Maintainability	2	
MTE521	Advanced Control & Robotics	3	
MTE522	Actuators & Power Electronics	3	
MTE523	Image Processing	2	
MTE524	Computer Graphics	2	
MTE599	Project & Seminar	6	
MTE520	Mechatronics Engineering Laboratory V	2	
Total Units		21	

2. SYSTEM ENGINEERING OPTION

300 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
MTH337	Numerical Analysis I	3	MTH222
EA311	Introduction to Engineering Statistics	3	
SCE311	Operation Research I	3	
SCE312	Element of Game Theory	2	
SCE313	Rigid Body Dynamics	3	
SCE314	Special Analytical Techniques	2	
SCE315	System Modeling	2	
SCE317	Engineering Materials-Properties and Selection	2	
SCE310	System and Control Laboratory I	2	
Total Units		22	

300 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
MTH323	Complex Analysis I	3	
EA321	Topics in Engineering Mathematics	2	
SCE321	Operation Research II	3	
SCE322	Algorithm and Data Structure	3	
SCE323	Engineering Materials & Environment	1	
SCE324	Linear Systems	2	
SCE325	Feedback Control Systems	3	
SCE327	Mathematical Modeling for AI Systems	3	
SCE320	System & Control Laboratory II	2	
GNS302	Private Business Management	3	
Total Units		25	

At the end of the 300 level, all the students are expected to undertake the Students Industrial Work Experience Scheme (SIWES I) (**2 UNITS**) before proceeding to 400 level

400 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EA413	Computer Programming for Engineers	2	CS142
EE411	Control Engineering I	3	EE311
SCE411	Operational Methods	2	
SCE412	Mechanics of Robotic System	3	

SCE413	System Simulations	3	
SCE417	Introduction to Queuing Theory	2	
SCE418	Introduction to Discrete Systems	2	
SCE410	System & Control Laboratory III	2	
Total Units		19	

400 LEVEL SECOND SEMESTER COURSES

INDUSTRIAL TRAINING (IT) 4 CREDITS UNITS

Industrial linked assignments, under supervision by members of the University, are undertaken by students who have met the academic requirements to proceed on supervised industrial work experience scheme (SIWES). The following form the basis for assessment of the assignments.

- 1 Basic Industrial training
- 2 Design and Make Group Projects
- 3 Seminar on Group Project
- 4 Report on Group Project
- 5 Industrial Design Project
- 6 Report on Industrial design Project
- 7 Individual Seminar
- 8 Assessment by Individual Supervisor
- 9 Overall Assessment

500 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EE501	Control Engineering II	3	EE411
EE511	Computer-Aided System Analysis & Design	3	
SE599	Project & Seminar	-	
COE521	Embedded Control Systems	3	
SE511	Artificial Intelligence	2	
SE513	Computer Structures & Real Time Systems	3	
SE514	Techniques of Planning & Scheduling	2	
SCE510	System Engineering Laboratory IV	2	
SCE515	Stochastic Models	3	
Total Units		21	

500 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EE523	System Reliability & Maintainability	3	
MTE521	Advanced Control & Robotics	3	
SE521	Facility Planning	2	
SE512	Automated Reasoning	2	
MTE523	Image Processing	2	
MTE524	Computer Graphics	2	

MTE599	Project & Seminar	6	
SE520	System Engineering Laboratory V	2	
Total Units		22	

3 CONTROL ENGINEERING OPTION

300 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
MTH337	Numerical Analysis I	3	MTH222
EA311	Introduction to Engineering Statistics	3	
SCE311	Operation Research I	3	
SCE312	Element of Game Theory	2	
SCE313	Rigid Body Dynamics	3	
SCE314	Special Analytical Techniques	2	
SCE315	System Modeling	2	
SCE317	Engineering Materials-Properties and Selection	2	
SCE310	System and Control Laboratory I	2	
Total Units		22	

300 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
MTH323	Complex Analysis I	3	
EA321	Topics in Engineering Mathematics	2	
SCE321	Operation Research II	3	SCE311
SCE322	Algorithm and Data Structure	3	
SCE323	Engineering Materials & Environment	1	
SCE324	Linear Systems	2	
SCE325	Feedback Control Systems	3	
SCE327	Mathematical Modeling for AI Systems	3	
SCE320	System & Control Laboratory II	2	
Total Units		23	

At the end of the 300 level, all the students are expected to undertake the Students Industrial Work Experience Scheme (SIWES I **2 UNITS**) before proceeding to 400 level

400 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EA413	Computer Programming for Engineers	2	CS142
EE411	Control Engineering I	3	EE311

SCE411	Operational Methods	2	
SCE412	Mechanics of Robotic System	3	
SCE413	System Simulations	3	
SCE417	Introduction to Queuing Theory	2	
SCE418	Introduction to Discrete Systems	2	
SCE410	System & Control Laboratory III	2	
Total Units		19	

400 LEVEL SECOND SEMESTER COURSES

INDUSTRIAL TRAINING (IT) 4 CREDITS UNITS

Industrial linked assignments, under supervision by members of the University, are undertaken by students who have met the academic requirements to proceed on supervised industrial work experience scheme (SIWES). The following form the basis for assessment of the assignments.

- 1 Basic Industrial training
- 2 Design and Make Group Projects
- 3 Seminar on Group Project
- 4 Report on Group Project
- 5 Industrial Design Project
- 6 Report on Industrial design Project
- 7 Individual Seminar
- 8 Assessment by Individual Supervisor
- 9 Overall Assessment

500 LEVEL FIRST SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EE501	Control Engineering II	3	EE411
EE511	Computer-Aided System Analysis & Design	3	
COE599	Project & Seminar	-	
COE511	Artificial Intelligence	2	
MTE511	Computer Structures & Real Time Systems	3	
COE512	State Space Control Design	3	
COE513	Industrial Control System	2	
COE514	Embedded Control Systems	2	
COE510	Control Engineering Laboratory IV	2	
SCE515	Stochastic Models	3	
Total Units		23	

500 LEVEL SECOND SEMESTER COURSES

Course Title	Course Title	Credit Units	Pre-Requisite
EE523	System Reliability & Maintainability	3	
MTE521	Advanced Control & Robotics	3	
COE521	System Identification	3	
MTE523	Image Processing	2	
MTE524	Computer Graphics	2	
MTE599	Project & Seminar	6	
COE520	Control Engineering Laboratory V	2	
Total Units		21	