

# Curriculum of Bachelor of Science in NETWORK ENGINEERING & SECURITY (BNES)

=====YU-COEA A.Y.2022 Dec 14 V8.3, Total Credit Hours = 141 =====

## FIRST YEAR (Freshmen)

First Semester				Second Semester			
Code	Course Title	CR	Pre-Requisite	Code	Course Title	CR	Pre-Requisite
CIS 103	Programming Fundamentals I	4	ORN 03C ORN 03R	CIS 104	Programming Fundamentals II	4	CIS 103 ORN 05C ORN 05R
CHM 101	General Chemistry	4	ORN 04R ORN 04C	PHY 103	Physics I	4	ORN 04R ORN 04C
MTH 106	Discrete Mathematics	3	MTH 001 ORN 04C ORN 04R	MTH 104	Calculus I	3	MTH 001 ORN 03C ORN 03R
ENG 101	English Essay Writing	3	ORN 05R ORN 05C	STT 103	Probability and Statistics	3	MTH 001 ORN 03C ORN 03R
ISL 101	Foundation of Islamic Culture	2	ORN 03R ORN 03C	ARB 102	Communication Skills in Arabic	2	ORN 03R ORN 03C
	Humanities / Social Science Elective I	3	ORN 04R ORN 04C		Humanities / Social Science Elective II	3	ORN 04R ORN 04C
<b>Sub-Total</b>		<b>19</b>		<b>Sub-Total</b>		<b>19</b>	

## SECOND YEAR (Sophomore)

First Semester				Second Semester			
Code	Course Title	CR	Pre-Requisite	Code	Course Title	CR	Pre-Requisite
CIS 201	Fundamentals of Web Design	3	CIS 103	CIS 221	Introduction to Database Systems	3	CIS 104
CIS 202	Data Structures	3	CIS 104	SWE 202	Introduction to Software Engineering	3	CIS 104
MIS 201	Introduction to Information Systems	3	ORN 05C ORN 05R	NES 212	Data Communications and Computer Networks	3	CIS 201
PHY 203	Physics - II	4	PHY 103	NES 221	Digital Logic and Design	4	MTH 106
MTH 204	Calculus-II	3	MTH 104	ENG 201	Technical Report Writing	3	ENG 101
ISL 201	Foundation of Islamic Economy	2	ORN 03R ORN 03C	ARB 202	Writing Skills in Arabic	2	ORN 03R ORN 03C
<b>Sub-Total</b>		<b>18</b>		<b>Sub-Total</b>		<b>18</b>	

## THIRD YEAR (Junior)

First Semester				Second Semester			
Code	Course Title	CR	Pre-Requisite	Code	Course Title	CR	Pre-Requisite
CIS 304	Computer Architecture	3	CIS 202	CIS 321	Operating System	3	CIS 304
CIS 386	Project Management	3	SWE 202	CIS 351	Client Server Programming	3	CIS 202
CIS 383	Cyber Security and Cryptography	3	NES 212	CIS 381	Computer Ethics	2	SWE 202
NES 341	Computer Networks	4	NES 212	NES 322	Signals and Systems	3	MTH 304
MTH 304	Differential Equations	3	MTH 204	NES 443	Enterprise Networking	3	NES 341
				MTH 301	Linear Algebra	3	MTH 104
<b>Sub-Total</b>		<b>16</b>		<b>Sub-Total</b>		<b>17</b>	

## FOURTH YEAR (Senior)

First Semester				Second Semester			
Code	Course Title	CR	Pre-Requisite	Code	Course Title	CR	Pre-Requisite
CIS 491	Graduation Project I	3	90 CH NES 322 NES 341	CIS 492	Graduation Project II	3	CIS 491 CIS 351 NES 482
NES 342	Wireless and Mobile Computing	3	NES 341	NES 485	Ethical Hacking	3	NES 482
NES 482	Network Security	4	NES 341		NES Elective II	3	
NES 483	Forensics and Incident Response	3	CIS 383		NES Elective III	3	
	NES Elective I	3		CSK 001	Career Skills	0	
<b>Sub-Total</b>		<b>16</b>		<b>Sub-Total</b>		<b>12</b>	

**FOURTH YEAR (Senior)****Summer Semester**

Code	Course Title	CR	Pre-Requisite
CIS 490	Cooperative Assignment (*)	6	90 CH
<b>Sub-Total</b>		<b>6</b>	

(\*) it is recommended to take CSK 001 before CIS 490.

**NES Electives students should register 3 courses**

Course Code	Course Title	Pre-requisites	Credit Hours*
NES 421	System Administration	NES 341	3
NES 423	Digital Communication Systems	NES 322	3
NES 424	IOT architectures, protocols and security	NES 212	3
CIS 443	Cloud Computing	NES 212	3
CIS 316	Introduction to Artificial Intelligence	SWE 202	3
CIS 416	Introduction to Machine Learning	CIS 316	3
NES 444	Cloud Services and Security	NES 341	3
NES 445	Network Management	NES 341	3
NES 446	Selected Topics in Network Engineering & Security	NES 341	3
NES 447	Optical Networks	NES 341	3
NES 448	Network Modelling and Simulation	NES 341	2 + 1
NES 449	Broadband Communication and Networks	NES 341	3
NES 481	Security Policies and Procedures	NES 341	3

**Humanities / Social Science Electives  
(Two courses from this list)**

Code	Course Title	CR	Pre-Requisite
SOS 102	Introduction to Social Science	3	ORN 04R & ORN 04C
PHL 101	Critical Thinking	3	ORN 04R & ORN 04C
PSY 101	Principle of Psychology	3	ORN 04R & ORN 04C
SOS 101	Saudi Heritage	3	ORN 04R & ORN 04C
FRE 106	Conversational French 1	3	ORN 04R & ORN 04C
CHI 107	Chinese Language	3	ORN 04R & ORN 04C