

# **NIST UNIVERSITY**

**Department of Electronics & Comm. Engg.**



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**Department of Electronics and Communication Engineering**

**INSTITUTE PARK, BERHAMPUR, ODISHA - 761008, INDIA**

**Syllabus Structure**



Credits Requirement for Engineering UG (B.Tech.)			
Category of Course	Number of Theory Courses*Credits	Number of Lab /Practice Courses*credits	Total Credits
Basic Science	$6 * 3 = 18$	$6 * 1 = 6$	24
Engineering Science	$6 * 3 = 18$	$6 * 1 = 6$	24
Humanities and Social Sciences including Management Courses	$2 * 3 + 1 * 4 = 10$	-	10
Professional Core	$12 * 3 = 36$	$12 * 1 = 12$	48
Professional Elective	$5 * 3 = 15$	$2 * 1 = 2$	17
Open Elective	$3 * 3 = 9$	--	09
Skill Enhancement Courses	$1 * 2 = 2$	$6 * 1 = 6$	08
Value Added Courses	$4 * 1 = 4$	$1 * 1 = 1$	05
Ability Enhancement Course	$3 * 1 = 3$	-	03
Project/Internship (PR)	-	$2 * 1 + 1 * 4 + 1 * 10 = 16$	16
<b>Total</b>	<b>127</b>	<b>37</b>	<b>164*</b>

Distribution of Credits across various Courses as per NEP 2020 Policy:



I Year Course structure								
Semester -I								
SL NO.	CODE	SUBJECT NAME	Category	Periods				Credits
				L	T	P	Total	
1	CHE100/PHY100	Applied Chemistry/Applied Physics	BS	3	0	2		4
2	MTH-100	Mathematics - 1	BS	3	1	0		4
3	EEE100/ ECE100	Basic Electrical Engineering/ Basic Electronics Engineering	ES	3	0	2		4
4	CSE-100	Problem-Solving using C Programming	ES	3	0	2		4



5	MEC100	Introducing to Engineering Mechanics and Drawing	ES	3	0	2	4
6	MEC-101	IDEA Lab	SEC	0	0	2	1
7	EGL100	Universal Human Values -I	VAC	1	0	0	1
Contact Hours				16	0	10	
Total Credits							22

First - Year Course Structure (II Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	BS	PHY-100/CHE100	Applied Physics/Applied Chemistry	3	2	0	4
2	BS	MTH-101	Engineering Mathematics -II	3	2	0	4
3	ES	ECE-100/EEE100	Basic Electronics Engineering/Basic Electrical Engineering	3	2	0	4
4	ES	CSE-101	Data Structure using C	3	2	0	4
5	HS	ENG-100	English for Technical Writing	3	2	0	4
6	SEC	MEC-102	Design Thinking	0	2	0	1
7	VAC	YOG-100/ NSS-100/ NCC-100	NCC / NSS / YOGA*	0	2	0	1
Total Credits							22



Second - Year Course Structure (III Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	BS	MTH-200	Numerical Methods and Complex Analysis	3	0	1	4
2	PC	ECE-200	Electronics Devices and Circuits	3	2	0	4
3	PC	ECE-201	Network Analysis	3	2	0	4
4	PC	ECE-202	Signal and Systems	3	2	0	4
5	ES	ECE-203	Python Programming	3	2	0	4
6	AEC	ENG-200	Soft Skill - I	1	0	0	1
7	VAC	CVL-204	Environmental Science and Engineering	1	0	0	1
							22

Second - Year Course Structure (IV Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	BS	BTC-200	Probability and Statistics	3	0	1	4
2	PC	ECE-204	Digital System Design	3	2	0	4
3	PC	ECE-205	Analog and Digital Communication Techniques	3	2	0	4
4	PC	ECE-206	Electromagnetic Theory	3	2	0	4



5	HS	MGT-201	Organization Behavior/Engineering Economics	3	0	0	3
6	SEC	ECE-207	Object Oriented Programming through JAVA	0	2	0	1
7	SEC	MGT-200	Aptitude and Reasoning-I	1	0	0	1
8	VAC	MGT-XXX	Constitution of India	1	0	0	1
<b>Total Credits</b>							<b>22</b>

Third - Year Course Structure (V Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	PC	ECE-300	Digital Signal Processing	3	2	0	4
2	PC	ECE-301	Microcontroller and Applications	3	2	0	4
3	PC	ECE-302	Digital VLSI Design	3	2	0	4
4	PE	xxx-xxx*	Professional Elective -I	3	0	0	3
5	OE	xxx-xxx*	Open Elective - I	3	0	0	3
6	SEC	ECE-310	Product Development Lab	0	2	0	1
7	AEC	MGT300	Aptitude and Reasoning - II	1	0	0	1
8	VAC	ENG-300	Essence of Indian Tradition Knowledge	1	0	0	1
9	PR	ECE-311	Internship	0	2	0	1
<b>Total Credits</b>							<b>22</b>

\*Course Code for PE & OE (XXX-XXX) will be one of the following.



<b>Professional Elective -I</b> ECE-303: Mobile Communication ECE-304: Information Theory and Security ECE-305: Introduction to Artificial Intelligence ECE-306: Semiconductor Device	<b>Open Elective - I</b> ECE-307: Introduction to Information Theory ECE-308: Fundamental of Digital VLSI ECE-309: Radar System Engineering
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Third - Year Course Structure (VI Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	PC	ECE-312	Microwave Engineering	3	2	0	4
2	PC	ECE-313	Control System Engineering	3	2	0	4
3	PE	xxx-xxx*	Professional Elective -II	3	2	0	4
4	PE	xxx-xxx*	Professional Elective -III	3	0	0	3
5	OE	xxx-xxx*	Open Elective - II	3	0	0	3
6	SEC	ECE-323	Lab-based Project	1	2	0	2
7	AEC	ENG-301	Soft Skill - II	1	0	0	1
8	AEC	ENG-302	Business communication and interview skills.	1	0	0	1
<b>Total Credits</b>							<b>22</b>

\*Course Code for PE & OE (XXX-XXX) will be one of the following.

<b>Professional Elective -II</b> ECE-314: Machine Learning ECE-315: Computer Network and Data Communication ECE-316: Computer Organization and	<b>Open Elective - II</b> ECE-320: Fundamental of Satellite Communication ECE-321: Introduction to Digital VLSI Design ECE-322: Fundamental of Embedded System Design
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Architecture	
<b>Professional Elective -III</b> ECE-317: 5G and Future Communications ECE-318: Satellite Communication ECE-319: Analog VLSI Design	

Fourth - Year Course Structure (VII Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	PC	ECE-400	Internet of Things (IoT)	3	2	0	4
2	PE	xxx-xxx*	<b>Professional Elective -IV</b>	3	2	0	4
3	PE	xxx-xxx*	<b>Professional Elective -V</b>	3	0	0	3
4	OE	xxx-xxx*	<b>Open Elective - III</b>	3	0	0	3
5	HS	MGT-400	Entrepreneurship Development	3	0	0	3
6	PR	ECE-412	Project phase-I	0	8	0	4
9	PR	ECE-413	Internship	-	-	-	1
<b>Total Credits</b>							<b>22</b>

\*Course Code for PE & OE (XXX-XXX) will be one of the following.

<b>Professional Elective -IV</b> ECE-401: Embedded Systems Design ECE-402: VLSI Design Automation ECE-403: Deep Learning	<b>Open Elective - III</b> ECE-408: Principles of Mobile Communication ECE-409: Internet of Things (IoT) ECE-410: Wireless Communication Network ECE-411: Electronic Design Automation
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<b>Professional Elective -V</b> ECE-404: Radar Engineering ECE-405: Wireless Communication Network ECE-406: Mobile Computing ECE-407: Optical Communication	
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Fourth - Year Course Structure (VIII Semester)							
S. No.	Course Category	Course Code	Course Title	L	P	T	Credits
1	PR	ECE-414	Project phase -II	-	20-	-	10
<b>Total Credits</b>							<b>10</b>