SECOND YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION, REVISED COURSE (2019-2020) Implemented from 2023-24

Semester III

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination						
		L	T	P#	Duration (Hrs.)	Marks					Credits
						Th	IA	TW**	P	Total	
ECS310	Essential Mathematics for Engineers	3	--	--	3	100	25	--	--	125	3
ECS320	Electrical Circuits and Systems	4	--	--	3	100	25	--	--	125	4
ECOMP330	Electronic Devices and Circuits	3	1	--	3	100	25	25	--	150	4
ECOMP340	Digital Electronics	3	1	--	3	100	25	25	--	150	4
ECOMP350	Data Structures and Algorithms using C++	3	--	--	3	100	25	--	--	125	3
ECS360	Electronic Devices and Circuits Lab	--	--	2	--	--	--	25	25	50	1
ECOMP370	Data Structures and Algorithms using C++ Lab	--	--	2	--	--	--	25	25	50	1
ECS380	Digital Electronics Lab	--	--	2	--	--	--	25	25	50	1
HM012	Technical Writing and Professional Communication	1	1	--	--	--	--	75	--	75	2
AC390	Mathematics-I and II (Bridge Course*)	2	--	--	--	--	--	--	--	--	--
	TOTAL	**19**	**3**	**6**	--	**500**	**125**	**200**	**75**	**900**	**23**

L-Lecture T-Tutorial P-Practical Th-Theory TW-Term Work IA-Internal Assessment

***Applicable to direct second year /lateral entry students.**

****Term Work marks are to be awarded through continuous evaluation**

A candidate is considered to have successfully fulfilled the requirement of a semester, provided he/ she submits to the department a certified journal reporting the experiments conducted during the semester.

SECOND YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION, REVISED COURSE (2019-2020)

Semester IV

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination						
		L	T	P#	Duration (Hrs.)	Marks					Credits
						Th	IA	TW**	P	Total	
ECS410	Signal Processing Fundamentals	3	1	--	3	100	25	25	--	150	4
ECS420	Computer Organization & Operating Systems	4	0	--	3	100	25	--	--	125	4
ECS430	Analog Electronics & Instruments	3	1	--	3	100	25	25	--	150	4
ECS440	Microprocessors & Microcontrollers	3	--	--	3	100	25	--	--	125	3
ECOMP450	Java Programming	3	--	--	3	100	25	--	--	125	3
ECS460	JAVA Programming Lab	--	--	2	--	--	--	25	25	50	1
ECOMP470	Analog Circuits Design Lab	--	--	2	--	--	--	25	25	50	1
ECS480	Microcontrollers Lab	--	--	2	--	--	--	25	25	50	1
HM013	Business Economics and Management	3	--	--	3	100	25	--	--	125	3
	TOTAL	**19**	**2**	**6**	**--**	**600**	**150**	**125**	**75**	**950**	**24**

L-Lecture T-Tutorial P-Practical Th-Theory TW-Term Work IA-Internal Assessment

****Term Work marks are to be awarded through continuous evaluation**

A candidate is considered to have successfully fulfilled the requirement of a semester, provided he/ she submits to the department a certified journal reporting the experiments conducted during the semester.

THIRD YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM
PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION,
REVISED COURSE (2019-2020)
Semester V

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination						
		L	T	P	Duration(Hrs.)	Marks					Credits
						Th	IA	TW**	P	Total	
ECS510	Electronic Communication Systems	4	--	--	3	100	25	--	--	125	4
ECS520	Database Systems Concepts	3	--	--	3	100	25	--	--	125	3
ECS531	Open Source Software Development	3	--	--	3	100	25	--	--	125	3
ECOMP532	Software Engineering										
ECOMP533	Soft Computing										
ECOMP534	Design and Analysis of Algorithms										
ECOMP535	Computer Graphics										
ECOMP541	Control System Engineering	3	--	--	3	100	25	--	--	125	3
ECOMP542	Power Electronics										
ECS543	Digital Signal Processing and Applications										
ECS544	Transmission Lines and Antennas										
ECOMP545	Consumer Electronics										
ECOMP550	Web Technology Lab	--	--	2	--	--	--	25	25	50	1
ECS560	Database Systems Lab	--	--	2	--	--	--	25	25	50	1
ECS570	Professional Elective Lab - I	--	--	2	--	--	--	25	25	50	1
*	Open Elective	3	--	--	3	100	25	--	--	125	3
HM009	Ethics & Entrepreneurship	3	--	--	3	100	25	--	--	125	3

	TOTAL	**19**	**0**	**6**	**--**	**600**	**150**	**75**	**75**	**900**	**22**

L-Lecture T-Tutorial P-Practical Th-Theory TW-Term Work IA-Internal Assessment

****Term Work marks are to be awarded through continuous evaluation**

A candidate is considered to have successfully fulfilled the requirement of a semester, provided he/ she submits to the department a certified journal reporting the experiments conducted during the semester.

* Students may enter the subject code of the open elective selected from the courses of other branch of Engineering.

THIRD YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION, REVISED COURSE (2019-2020)

Semester VI

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination						
		L	T	P#	Duration (Hrs.)	Marks					Credits
						Th	IA	TW**	P	Total	
ECS610	VLSI Design and Technology	4	--	--	3	100	25	--	--	125	4
ECS620	Introduction to Computer Networks	3	--	--	3	100	25	--	--	125	3
ECS631	Neural Networks and Deep Learning	3	--	--	3	100	25	--	--	125	3
ECOMP632	Augmented Reality and Virtual Reality										
ECOMP633	Mobile Phone Programming										
ECOMP634	Software Testing and Quality Assurance										
ECS635	Introduction to Cloud Computing										
ECOMP641	Digital Image Processing	3	--	--	3	100	25	--	--	125	3
ECOMP642	Information Theory and Coding										
ECOMP643	Advanced Microcontroller										
ECS644	Industrial Automation and Control										
ECOMP645	Robotics										
ECOMP650	VLSI Design Lab	--	--	2	--	--	--	25	25	50	1

ECOMP660	Computer Networks Lab	--	--	2	--	--	--	25	25	50	1
ECS670	Professional Elective Lab- II	--	--	2	--	--	--	25	25	50	1
*	Open Elective	3	--	--	3	100	25	--	--	125	3
HM006	Cyber Law & IPR	3	--	--	3	100	25	--	--	125	3
	TOTAL	**19**	**0**	**6**	**--**	**600**	**150**	**75**	**75**	**900**	**22**

L-Lecture T-Tutorial P-Practical Th-Theory TW-Term Work IA-Internal Assessment

****Term Work marks are to be awarded through continuous evaluation**

A candidate is considered to have successfully fulfilled the requirement of a semester, provided he/ she submits to the department a certified journal reporting the experiments conducted during the semester.

* Students may enter the subject code of the open elective selected from the courses of other branch of Engineering.

FOURTH YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION, REVISED COURSE (2019-2020)

Semester VII

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination						
		L	T	P#	Duration (Hrs.)	Marks Th	IA	TW**	O	Total	Credits
ECS710	Discrete Structures and Automata Theory	3	--	--	3	100	25	--	--	125	3
ECOMP721	Block chain Technology	3	--	--	3	100	25	--	--	125	3
ECOMP722	Machine Learning										
ECOMP723	Hardware Descriptive Languages										
ECOMP724	Wireless Sensor Networks										
ECS725	Microwave and Radar Engineering										
ECS730	Professional Elective Lab- III	--	--	2	--	--	--	25	25	50	1
*	Open Elective	3	--	--	3	100	25	--	--	125	3
ECS740	Internship	--	--	6	--	--	--	50	50	100	3
ECS750	Project Work - Phase I	--	--	6	--	--	--	50	75	125	3

ECS760	Electronic System Design & Manufacturing Lab	--	--	2	--	--	--	25		25	1
	TOTAL	**9**	--	**16**	**--**	**300**	**75**	**150**	**150**	**675**	**17**

L-Lecture T-Tutorial P-Practical Th-Theory TW-Term Work IA-Internal Assessment

****Term Work marks are to be awarded through continuous evaluation**

A candidate is considered to have successfully fulfilled the requirement of a semester, provided he/ she submits to the department a certified project report of the work done during the semester.

* Students may enter the subject code of the open elective selected from the courses of other branch of Engineering.

FOURTH YEAR ELECTRONICS AND COMPUTER SCIENCE PROGRAM PROPOSED SCHEME OF INSTRUCTION AND EXAMINATION, REVISED COURSE (2019-2020)

Semester VIII

Course Code	Nomenclature of the Course	Scheme of Instruction Hrs./Week			Scheme of Examination							
		L	T	P	Duration (Hrs.)	Marks						Credits
						Th	IA	TW**	O	OCS	Total	
ECOMP810	Cryptography and Network Security	3	--	--	3	100	25	--	-	-	125	3
ECOMP821	Compiler Design	3	--	--	3	100	25	--	-	-	125	3
ECS822	Advanced Communication Systems											
ECOMP823	Biomedical Electronics & Instrumentation											
ECOMP824	Internet of Things											
ECOMP825	Data Analytics											
ECS830	Elective - NPTEL/ MOOC/ SWAYAM	3	--	--	--	--	--	25#	-	75#	100	3
ECS840	Project Work - Phase II	--	--	18	--	--	--	200	200	-	400	9
	TOTAL	**9**	**--**	**18**	**--**	**200**	**50**	**225**	**200**	**75**	**750**	**18**

****Term Work marks are to be awarded through continuous evaluation**

Students should mandatorily undertake one NPTEL Course of only 3 credits from the list of approved
Online courses of Goa University to be offered during the V/ VI/VII Semester.

Online Assignments Score obtained will be considered/scaled accordingly for Term Work (TW)and Proctored Exam Score will be considered/scaled accordingly for Online Course Score(OCS) of

NPTEL / MOOC / SWAYAM certification course. The score obtained shall be rounded to near higher integer.

LEGEND

Abbreviation	Description
L	Lecture
T	Tutorial
P	Practical
O	Oral
Th	Theory
TW	Term Work
IA	Internal assessment
OCS	Online Course Score