



AMRITA
VISHWA VIDYAPEETHAM
DEEMED TO BE UNIVERSITY

School of
Engineering

AMRITAPURI, BENGALURU, COIMBATORE, CHENNAI

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. in ELECTRONICS AND COMPUTER ENGINEERING
(BTC-EAC)

CURRICULUM 2019

SEMESTER I

Cat.	Code	Title	L T P	Credit
SCI	19MAT101	Single Variable Calculus	1 0 0	1
SCI	19MAT102	Matrix Algebra	2 0 0	2
ENGG	19EAC101	Introduction to Computer Engineering	3 0 0	3
ENGG	19CSE100	Problem Solving and Algorithmic Thinking	2 1 3	4
SCI	19PHY103	Physics of Electronic Materials	3 0 0	3
ENGG	19MEE100	Engineering Graphics - CAD	2 0 3	3
ENGG	19EEE111	Electrical and Electronics Engineering	3 0 0	3
ENGG	19EEE182	Electrical and Electronics Engineering Practice	0 0 3	1
ENGG	19ECE101	Introduction to IoT	0 0 3	1
HUM	19CUL101	Cultural Education - I	2 0 0	2
		TOTAL	31	23

SEMESTER II

Cat.	Code	Title	L T P	Credit
HUM	19ENG111	Technical Communication	2 0 3	3
SCI	19MAT115	Discrete Mathematics	3 1 0	4
ENGG	19EAC111	Digital Circuits and Systems	3 1 0	4
ENGG	19CSE102	Computer Programming*(C/C++)	3 0 3	4
ENGG	19EAC112	Solid State Devices	3 0 0	3
ENGG	19EAC181	Digital Systems Lab	0 0 3	1
ENGG	19MEE181	Manufacturing Practice	0 0 3	1
HUM	19CUL111	Cultural Education - II	2 0 0	2
		TOTAL	30	22

SEMESTER III

Cat.	Code	Title	L T P	Credit
SCI	19MAT209	Linear Algebra and Optimization Techniques	3 1 0	4
ENGG	19EAC204	Computer Organization and Architecture	3 0 0	3
ENGG	19EAC203	Data Structures and Algorithms	2 0 3	3
ENGG	19EAC205	Mathematics of Signal Processing	3 0 0	3
ENGG	19EAC201	Electronic Circuits I	3 0 0	3
HUM	19AVP201	Amrita Values Program	1 0 0	1
ENGG	19EAC281	Mathematics of Signal Processing Lab	0 0 3	1
ENGG	19EAC202	Network Theory	3 0 0	3
ENGG	19EAC282	Electronic Circuits I Lab	0 0 3	1
		TOTAL	28	22

SEMESTER IV

Cat.	Code	Title	L T P	Credit
SCI	19MAT205	Probability and Random Processes	3 1 0	4
ENGG	19EAC212	Electronic Circuits II	3 0 0	3
ENGG	19EAC213	Digital Signal Processing and Processors	3 0 0	3
ENGG	19EAC211	Operating Systems	2 0 2	3
ENGG	19EAC214	Microprocessor and Microcontroller	3 0 0	3
ENGG	19EAC283	Digital Signal Processing and Processors Lab	0 0 3	1
ENGG	19EAC284	Electronic Circuits II Lab	0 0 3	1
ENGG	19EAC285	Microcontroller Lab	0 0 3	1
HUM	19AVP211	Amrita Values Program	1 0 0	1
HUM	19SSK211	Soft Skills I	1 0 3	2
		TOTAL	31	22

SEMESTER V

Cat.	Code	Title	L T P	Credit
ENGG	19EAC301	Fundamentals of Machine Learning	2 1 0	3
ENGG		Professional Elective I*	3 0 0	3
ENGG	19EAC302	Embedded Systems Design	3 0 0	3
ENGG	19EAC303	Information Theory and Coding	3 1 0	4
ENGG	19ECE313	VLSI Design	3 0 0	3
ENGG	19EAC381	Machine Learning lab with Python	0 0 3	1
ENGG	19ECE383	VLSI Design lab	0 0 3	1
ENGG	19SSK301	Soft Skills II	1 0 3	2
ENGG	19LIV390	Live-in –Labs***		[3]
ENGG	19ENV300	Environmental Science		P/F
		TOTAL	26	20

SEMESTER VI

Cat.	Code	Title	L T P	Credit
ENGG	19EAC311	Computer Networks	3 0 0	3
ENGG	19EAC312	Data Base Management Systems	3 0 0	3
ENGG	19EAC313	Data Science	3 0 0	3
PRJ	19EAC383	Technical Presentation and Writing	0 2 0	2
ENGG		Professional Elective II*	3 0 0	3
HUM	19SSK311	Soft Skills III	1 0 3	2
ENGG	19EAC386	Open Lab/Professional Elective III*	1 0 3	2
ENGG	19EAC384	Computer Networks Lab	0 0 3	1
ENGG	19EAC385	R Programming Lab (Data Science)	0 0 3	1
ENGG	19LIV490	Live-in –Labs***		[3]
		TOTAL	28	20

SEMESTER VII

Cat.	Code	Title	L T P	Credit
ENGG	19EAC401	Introduction to Cyber Security	3 0 2	4
ENGG		Professional Elective IV*	3 0 0	3
ENGG		Professional Elective V*	3 0 0	3
ENGG		Professional Elective VI*	3 0 0	3
ENGG	19EAC496	Open Lab/Professional Elective VII*	1 0 3	2
PRJ	19EAC495	Project Phase I	0 0 6	2
HUM	19LAW300	Indian Constitution		P/F
HUM	19MNG300	Disaster Management		P/F
		TOTAL	24	17

SEMESTER VIII

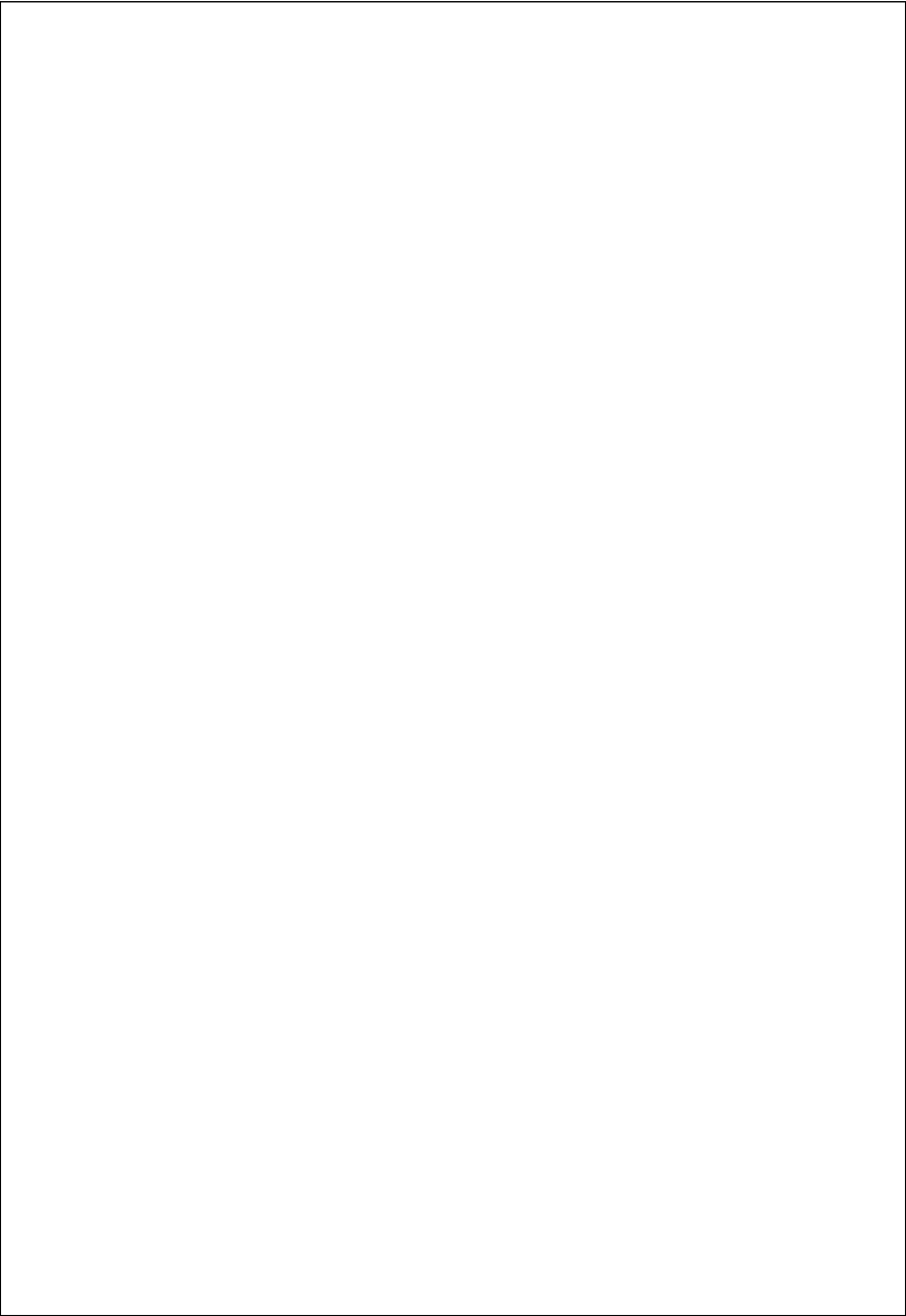
Cat.	Code	Title	L T P	Credit
ENGG		Professional Elective VIII*	3 0 0	3
HUM		Free Elective I**	3 0 0	3
PRJ	19EAC499	Project Phase II	0 0 30	10
		TOTAL	36	16

		TOTAL CREDITS		162
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***Professional Elective** - Electives categorised under Engineering, Science ,Mathematics, Live-in-Labs, and NPTEL Courses . Student can opt for such electives across departments/campuses.Students with CGPA of 7.0 and above can opt for a maximum of 2 NPTEL courses with the credits not exceeding 8.

**** Free Electives** - This will include courses offered by Faculty of Humanities and Social Sciences/ Faculty Arts, Commerce and Media / Faculty of Management/Amrita Darshanam -(International Centre for Spiritual Studies).

***** Live-in-Labs** - Students undertaking and registering for a Live-in-Labs project, can be exempted from registering for an Elective course in the higher semester.



PROFESSIONAL ELECTIVES

Computer Science				
Cat.	Code	Title	L T P	Credit
ENGG	19CSE459	Advanced Algorithms and Analysis	3 0 0 3	3
ENGG	19CSE340	Advanced Computer Networks	3 0 0 3	3
ENGG	19CSE357	Big Data Analytics	2 0 3 3	3
ENGG	19CSE445	Cloud Computing	3 0 0 3	3
ENGG	19CSE458	Computational Intelligence	3 0 0 3	3
ENGG	19CSE435	Computer Vision	3 0 0 3	3
ENGG	19CSE331	Cryptography	3 0 0 3	3
ENGG	19CSE312	Distributed Systems	3 0 0 3	3
ENGG	19CSE442	Pervasive and Ubiquitous Systems	3 0 0 3	3
ENGG	19CSE458	Computational Intelligence	3 0 0 3	3
ENGG	19CSE444	Real Time Systems	3 0 0 3	3
ENGG	19CSE453	Natural Language Processing	3 0 0 3	3
ENGG	19CSE440	Biometrics	3 0 0 3	3

Analog Electronics				
Cat.	Code	Title	L T P	Credit
ENGG	19ECE332	Mixed Signal Design	3 0 0 3	3
ENGG	19ECE334	Analog IC Design	3 0 0 3	3
ENGG	19ECE335	Applications of Linear Integrated Circuits	3 0 0 3	3
ENGG	19ECE331	Biomedical Instrumentation	3 0 0 3	3
ENGG	19ECE432	Software Defined Networks	3 0 0 3	3

Signal Processing				
ENGG	19ECE458	Adaptive Signal Processing	3 0 0 3	3
ENGG	19ECE442	Avionics	3 0 0 3	3
ENGG	19ECE455	Biomedical Signal Processing	3 0 0 3	3
ENGG	19ECE456	Hyperspectral Image Analysis	3 0 0 3	3
ENGG	19ECE454	Image Processing	3 0 0 3	3
ENGG	19ECE357	Pattern Recognition	3 0 0 3	3
ENGG	19ECE451	Spoken Language Processing	3 0 0 3	3
ENGG	19ECE463	Smart Sensors	3 0 0 3	3
ENGG	19ECE457	Wavelets and Application	3 0 0 3	3
ENGG	19ECE436	Wireless Sensor Networks	3 0 0 3	3

VLSI				
ENGG	19ECE346	Digital IC Design	3 0 0 3	3
ENGG	19ECE347	Electronic System Level Design and Verification	3 0 0 3	3
ENGG	19ECE342	Hardware Security and Trust	3 0 0 3	3
ENGG	19ECE461	Intelligent Control Systems	3 0 0 3	3
ENGG	19ECE348	VLSI Testing and Testability	3 0 0 3	3
ENGG	19ECE349	RISC Processor Design using HDL	3 0 0 3	3
ENGG	19ECE337	VLSI Fabrication Technology	3 0 0 3	3
ENGG	19ECE343	FPGA Based System Design	3 0 0 3	3
ENGG	19ECE434	MIMO and Multicarrier Communication	3 0 0 3	3
ENGG	19ECE350	VLSI Signal Processing	3 0 0 3	3
ENGG	19ECE313	VLSI System Design	3 0 0 3	3

PROFESSIONAL ELECTIVES OFFERED UNDER SCIENCE STREAMS

CHEMISTRY

Cat.	Code	Title	L T P	Credit
SCI	19CHY243	Computational Chemistry and Molecular Modelling	3 0 0	3
SCI	19CHY236	Electrochemical Energy Systems and Processes	3 0 0	3
SCI	19CHY240	Fuels and Combustion	3 0 0	3
SCI	19CHY232	Green Chemistry and Technology	3 0 0	3
SCI	19CHY239	Instrumental Methods of Analysis	3 0 0	3
SCI	19CHY241	Batteries and Fuel Cells	3 0 0	3
SCI	19CHY242	Corrosion Science	3 0 0	3

PHYSICS

SCI	19PHY340	Advanced Classical Dynamics	3 0 0	3
SCI	19PHY342	Electrical Engineering Materials	3 0 0	3
SCI	19PHY331	Physics of Lasers and Applications	3 0 0	3
SCI	19PHY341	Concepts of Nanophysics and Nanotechnology	3 0 0	3
SCI	19PHY343	Physics of Semiconductor Devices	3 0 0	3
SCI	19PHY339	Astrophysics	3 0 0	3

Mathematics

SCI	19MAT341	Statistical Inference	3 0 0	3
SCI	19MAT342	Introduction to Game Theory	3 0 0	3
SCI	19MAT343	Numerical Methods and Optimization	3 0 0	3

FREE ELECTIVES

FREE ELECTIVES OFFERED UNDER MANAGEMENT STREAM				
Cat.	Code	Title	L T P	Credit
HUM	19MNG331	Financial Management	3 0 0	3
HUM	19MNG332	Supply Chain Management	3 0 0	3
HUM	19MNG333	Marketing Management	3 0 0	3
HUM	19MNG334	Project Management	3 0 0	3
HUM	19MNG335	Enterprise Management	3 0 0	3
HUM	19MNG338	Operations Research	3 0 0	3
HUM	19MEE401	Industrial Engineering	3 0 0	3
HUM	19MEE346	Managerial Statistics	3 0 0	3
HUM	19MEE347	Total Quality Management	3 0 0	3
HUM	19MEE342	Lean Manufacturing	3 0 0	3
HUM	19CSE358	Software Project Management	3 0 0	3
HUM	19CSE359	Financial Engineering	3 0 0	3
HUM	19CSE360	Engineering Economic Analysis	3 0 0	3
HUM	19CSE362	Information Systems	3 0 0	3

FREE ELECTIVES OFFERED UNDER HUMANITIES / SOCIAL SCIENCE STREAMS				
Cat.	Code	Title	L T P	Credit
HUM	19CUL230	Achieving Excellence in Life - An Indian Perspective	2 0 0	2
HUM	19CUL231	Excellence in Daily Life	2 0 0	2
HUM	19CUL232	Exploring Science and Technology in Ancient India	2 0 0	2
HUM	19CUL233	Yoga Psychology	2 0 0	2
HUM	19ENG230	Business Communication	1 0 3	2
HUM	19ENG231	Indian Thought through English	2 0 0	2
HUM	19ENG232	Insights into Life through English Literature	2 0 0	2
HUM	19ENG233	Technical Communication	2 0 0	2
HUM	19ENG234	Indian Short Stories in English	2 0 0	2
HUM	19FRE230	Proficiency in French Language (Lower)	2 0 0	2
HUM	19FRE231	Proficiency in French Language (Higher)	2 0 0	2
HUM	19GER230	German for Beginners I	2 0 0	2
HUM	19GER231	German for Beginners II	2 0 0	2
HUM	19GER232	Proficiency in German Language (Lower)	2 0 0	2
HUM	19GER233	Proficiency in German Language (Higher)	2 0 0	2
HUM	19HIN101	Hindi I	2 0 0	2

HUM	19HIN111	Hindi II	2 0 0	2
HUM	19HUM230	Emotional Intelligence	2 0 0	2
HUM	19HUM231	Glimpses into the Indian Mind - the Growth of Modern India	2 0 0	2
HUM	19HUM232	Glimpses of Eternal India	2 0 0	2
HUM	19HUM233	Glimpses of Indian Economy and Polity	2 0 0	2
HUM	19HUM234	Health and Lifestyle	2 0 0	2
HUM	19HUM235	Indian Classics for the Twenty-first Century	2 0 0	2
HUM	19HUM236	Introduction to India Studies	2 0 0	2
HUM	19HUM237	Introduction to Sanskrit Language and Literature	2 0 0	2
HUM	19HUM238	National Service Scheme	2 0 0	2
HUM	19HUM239	Psychology for Effective Living	2 0 0	2
HUM	19HUM240	Psychology for Engineers	2 0 0	2
HUM	19HUM241	Science and Society - An Indian Perspective	2 0 0	2
HUM	19HUM242	The Message of Bhagwad Gita	2 0 0	2
HUM	19HUM243	The Message of the Upanishads	2 0 0	2
HUM	19HUM244	Understanding Science of Food and Nutrition	2 0 0	2
HUM	19JAP230	Proficiency in Japanese Language (Lower)	2 0 0	2
HUM	19JAP2313	Proficiency in Japanese Language (Higher)	2 0 0	2
HUM	19KAN101	Kannada I	2 0 0	2
HUM	19KAN111	Kannada II	2 0 0	2
HUM	19MAL101	Malayalam I	2 0 0	2
HUM	19MAL111	Malayalam II	2 0 0	2
HUM	19SAN101	Sanskrit I	2 0 0	2
HUM	19SAN111	Sanskrit II	2 0 0	2
HUM	19SWK230	Corporate Social Responsibility	2 0 0	2
HUM	19SWK231	Workplace Mental Health	2 0 0	2
HUM	19TAM101	Tamil I	2 0 0	2
HUM	19TAM111	Tamil II	2 0 0	2