



AMRITA
VISHWA VIDYAPEETHAM
DEEMED TO BE UNIVERSITY

School of
Engineering

AMRITAPURI, BENGALURU, COIMBATORE, CHENNAI

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

B.Tech. in ELECTRICAL AND ELECTRONICS ENGINEERING

(BTC-EEE)

CURRICULUM 2019

SEMESTER I

Cat.	Code	Title	Credit
HUM	19ENG111	Technical Communication	3
SCI	19MAT101	Single Variable Calculus	1
SCI	19MAT106	Ordinary Differential Equation	2
SCI	19MAT102	Matrix Algebra	2
ENGG	19CSE100	Problem Solving and Algorithmic Thinking	4
SCI	19PHY101/ 19CHY102	Engineering Physics - A/ Engineering Chemistry - B	3
SCI	19PHY181/ 19CHY182	Engineering Physics Lab - A / Engineering Chemistry Lab - B	1
ENGG	19MEE181	Manufacturing Practice	1
ENGG	19MEE100	Engineering Graphics - CAD	3
HUM	19CUL101	Cultural Education - I	2
		TOTAL	22

SEMESTER II

Cat.	Code	Title	Credit
HUM		Free Elective I**	2
SCI	19MAT111	Multivariable Calculus	2
SCI	19MAT116	Laplace Transform	1
SCI	19PHY101/ 19CHY102	Engineering Physics - A/ Engineering Chemistry - B	3
SCI	19PHY181/ 19CHY182	Engineering Physics Lab - A / Engineering Chemistry Lab - B	1
ENGG	19CSE102	Computer Programming	4
ENGG	19EEE113	Electrical Engineering Practice	2
ENGG	19EEE112	Electric Circuits	4
ENGG	19EEE114	Electronic Circuits	4
HUM	19CUL111	Cultural Education - II	2
		TOTAL	25

SEMESTER III

Cat.	Code	Title	Credit
SCI	19MAT214	Fourier Transforms and Complex Analysis	3
ENGG	19EEE205	Fundamentals of Mechanical Engineering	2
ENGG	19EEE206	Material Science for Electrical Engineering	2
ENGG	19EEE202	Analog Integrated Circuits	4
ENGG	19EEE204	Electrical Measurements	4
ENGG	19EEE203	Digital Systems	4
ENGG	19EEE201	Electromagnetic Theory	3
HUM	19AVP201	Amrita Values Program I	1
		TOTAL	23

SEMESTER IV

Cat.	Code	Title	Credit
SCI	19MAT216	Probability and Statistics	3
ENGG	19EEE213	Electrical Machines I	4
ENGG	19EEE214	Signals and Systems	4
ENGG	19EEE212	Electrical Energy Systems I	4
ENGG	19EEE211	Control Systems	4
HUM		Free Elective II**	2
HUM	19SSK211	Soft Skills I	2
HUM	19AVP211	Amrita Values Program II	1
		TOTAL	24

SEMESTER V

Cat.	Code	Title	Credit
ENGG	19EEE302	Electrical Energy Systems II	4
ENGG	19EEE304	Power Electronics	4
ENGG	19EEE301	Digital Signal Processing	4
ENGG	19EEE303	Electrical Machines II	4
ENGG		Professional Elective I*	3
ENGG		Professional Elective II*	3
HUM	19SSK301	Soft Skills II	2
ENGG	19LIV390	[Live in Labs]***	[3]
		TOTAL	24

SEMESTER VI

Cat.	Code	Title	Credit
ENGG	19EEE312	Electric Drives and Control	4
ENGG	19ELC212	Microcontrollers and Applications	4
ENGG		Professional Elective III*	3
ENGG		Professional Elective IV*	3
ENGG	19MAT313	Optimization Techniques	3
ENGG	19EEE313	Introduction to Python programming	1
ENGG	19EEE311	Software based Solutions for Electrical Engineering	1
ENGG	19EEE381	Open Lab	1
HUM	19SSK311	Soft Skills III	2
ENGG	19LIV490	[Live in Labs]***	[3]
HUM	19LAW300	Indian Constitution	P/F
		TOTAL	22+[3]

SEMESTER VII

Cat.	Code	Title	Credit
ENGG	19EEE401	Power System Protection and Switch Gear	4
ENGG		Professional Elective V*	3
ENGG		Professional Elective VI*	3
ENGG		Professional Elective VII*	3
HUM	19ENV300	Environmental Science	P/F
HUM	19MNG300	Disaster Management	P/F
ENGG	19EEE495	Project Phase I	2
		TOTAL	15

SEMESTER VIII

Cat.	Code	Title	Credit
ENGG	19EEE499	Project Phase II	10
		TOTAL	10

	Total Credits		165
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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			
POWER AND ENERGY SYSTEMS			
Cat.	Code	Title	Credit
ENGG	19EEE331	Smart Grid and IoT	3
ENGG	19EEE332	Deregulated Power Systems	3
ENGG	19EEE333	High Voltage Engineering	3
ENGG	19EEE334	Design of Electrical Apparatus	3
ENGG	19EEE335	Power Quality and FACTS	3
ENGG	19EEE336	Power Converters	3
ENGG	19EEE337	Power System Management	3
ENGG	19EEE338	Power plant Instrumentation	3
ENGG	19EEE339	Power system operation, control and stability	3
ENGG	19EEE340	Utilization of Electrical Energy	3
ENGG	19EEE341	Renewable Energy and Energy Conservation	3
ENGG	19EEE342	Design of Electrical Systems	3
ENGG	19EEE343	Management of Power Distribution	3
ENGG	19EEE344	Energy Storage Systems	3

EMBEDDED CONTROL & AUTOMATION			
Cat.	Code	Title	Credit
ENGG	19EEE351	Advanced Control Systems	3
ENGG	19EEE352	Digital Control System	3
ENGG	19EEE353	Process Control and Instrumentation	3
ENGG	19EEE354	Introduction to Robotics	3
ENGG	19EEE355	Mechatronics	3
ENGG	19EEE356	Industrial Electronics	3
ENGG	19EEE357	Embedded Systems Design	3
ENGG	19EEE358	Advanced Microcontrollers	3
ENGG	19EEE359	Digital Signal Processors	3
ENGG	19EEE360	VLSI System Design	3

AUTOMOTIVE SYSTEMS			
Cat.	Code	Title	Credit
ENGG	19EEE431	Electric Vehicles	3
ENGG	19EEE432	Vehicular Networks and Communication	3
ENGG	19EEE433	E-mobility Business and Policies	3
ENGG	19EEE434	Automotive Electronics	3
ENGG	19EEE435	Automotive Control Systems	3
ENGG	19EEE436	Vehicle Dynamics and Control	3

COMPUTER ENGINEERING			
Cat.	Code	Title	Credit
ENGG	19CSE330	Information Technology Essentials	3
ENGG	19CSE331	Cryptography	3
ENGG	19CSE348	Machine Learning	3
ENGG	19CSE349	Virtual Reality	3
ENGG	19CSE350	Internet of Things	3
ENGG	19CSE362	Fundamentals of Soft Computing	3
ENGG	19CSE363	Artificial Intelligence	3
ENGG	19CSE364	Big Data Analytics	3
ENGG	19CSE365	Computer Organization and Design	3
ENGG	19CSE366	Cyber Security	3
ENGG	19CSE367	Digital Image Processing	3
ENGG	19CSE368	Introduction to Computer Networks	3
ENGG	19CSE369	Introduction to Data Structures and Algorithms	3

GENERAL			
Cat.	Code	Title	Credit
ENGG	19EEE441	Network Synthesis	3
ENGG	19EEE442	Opto-Electronics & Laser Instrumentation	3
ENGG	19EEE443	Special Electric Machines	3
ENGG	19EEE444	Electromagnetic Compatibility	3

ENGG	19EEE445	Illumination Engineering	3
ENGG	19EEE446	Communication Engineering	3
ENGG	19EEE447	Biomedical Systems	3
ENGG	19EEE448	Biological Control Systems	3
ENGG	19EEE449	3D Printing & Design	3
ENGG	19ECE331	Biomedical Instrumentation	3
ENGG	19MNG331	Financial Management	3

PROFESSIONAL ELECTIVES UNDER SCIENCE STREAM

CHEMISTRY			
Cat.	Code	Title	Credit
SCI	19CHY243	Computational Chemistry and Molecular Modelling	3
SCI	19CHY236	Electrochemical Energy Systems and Processes	3
SCI	19CHY240	Fuels and Combustion	3
SCI	19CHY232	Green Chemistry and Technology	3
SCI	19CHY239	Instrumental Methods of Analysis	3
SCI	19CHY241	Batteries and Fuel Cells	3
SCI	19CHY242	Corrosion Science	3
PHYSICS			
SCI	19PHY340	Advanced Classical Dynamics	3
SCI	19PHY342	Electrical Engineering Materials	3
SCI	19PHY331	Physics of Lasers and Applications	3
SCI	19PHY341	Concepts of Nanophysics and Nanotechnology	3
SCI	19PHY343	Physics of Semiconductor Devices	3
SCI	19PHY339	Astrophysics	3
Mathematics			
SCI	19MAT341	Statistical Inference	3
SCI	19MAT342	Introduction to Game Theory	3
SCI	19MAT343	Numerical Methods and Optimization	3

FREE ELECTIVES

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

**FREE ELECTIVES OFFERED UNDER HUMANITIES / SOCIAL SCIENCE
STREAMS**

Cat.	Code	Title	Credit
HUM	19CUL230	Achieving Excellence in Life - An Indian Perspective	2
HUM	19CUL231	Excellence in Daily Life	2
HUM	19CUL232	Exploring Science and Technology in Ancient India	2
HUM	19CUL233	Yoga Psychology	2
HUM	19ENG230	Business Communication	2
HUM	19ENG231	Indian Thought through English	2
HUM	19ENG232	Insights into Life through English Literature	2
HUM	19ENG233	Technical Communication	2
HUM	19ENG234	Indian Short Stories in English	2
HUM	19FRE230	Proficiency in French Language (Lower)	2
HUM	19FRE231	Proficiency in French Language (Higher)	2
HUM	19GER230	German for Beginners I	2
HUM	19GER231	German for Beginners II	2
HUM	19GER232	Proficiency in German Language (Lower)	2
HUM	19GER233	Proficiency in German Language (Higher)	2
HUM	19HIN101	Hindi I	2
HUM	19HIN111	Hindi II	2
HUM	19HUM230	Emotional Intelligence	2
HUM	19HUM231	Glimpses into the Indian Mind - the Growth of Modern India	2
HUM	19HUM232	Glimpses of Eternal India	2
HUM	19HUM233	Glimpses of Indian Economy and Polity	2
HUM	19HUM234	Health and Lifestyle	2
HUM	19HUM235	Indian Classics for the Twenty-first Century	2
HUM	19HUM236	Introduction to India Studies	2
HUM	19HUM237	Introduction to Sanskrit Language and Literature	2
HUM	19HUM238	National Service Scheme	2
HUM	19HUM239	Psychology for Effective Living	2
HUM	19HUM240	Psychology for Engineers	2

HUM	19HUM241	Science and Society - An Indian Perspective	2
HUM	19HUM242	The Message of Bhagwad Gita	2
HUM	19HUM243	The Message of the Upanishads	2
HUM	19HUM244	Understanding Science of Food and Nutrition	2
HUM	19JAP230	Proficiency in Japanese Language (Lower)	2
HUM	19JAP2313	Proficiency in Japanese Language (Higher)	2
HUM	19KAN101	Kannada I	2
HUM	19KAN111	Kannada II	2
HUM	19MAL101	Malayalam I	2
HUM	19MAL111	Malayalam II	2
HUM	19SAN101	Sanskrit I	2
HUM	19SAN111	Sanskrit II	2
HUM	19SWK230	Corporate Social Responsibility	2
HUM	19SWK231	Workplace Mental Health	2
HUM	19TAM101	Tamil I	2
HUM	19TAM111	Tamil II	2