



AMRITA
VISHWA VIDYAPEETHAM
DEEMED TO BE UNIVERSITY

School of
Engineering

AMRITAPURI, BANGALORE, COIMBATORE, CHENNAI

**B.Tech. in CIVIL ENGINEERING
(BTC-CIE)**

CURRICULUM 2019

SEMESTER I

Cat.	Code	Title	L T P	Credit
HUM	19ENG111	Technical Communication	2 0 3	3
SCI	19MAT101	Single Variable Calculus	1 0 0	1
SCI	19MAT102	Matrix Algebra	2 0 0	2
ENGG	19CSE100	Problem Solving and Algorithmic Thinking	2 1 3	4
SCI	19PHY102	Engineering Physics - B	2 1 0	3
SCI	19PHY182	Engineering Physics Lab - B	0 0 3	1
ENGG	19MEE101	Engineering Drawing	2 0 3	3
ENGG	19EEE100	Basic Electrical and Electronics Engineering	3 0 0	3
ENGG	19EEE181	Basic Electrical and Electronics Engineering Lab	0 0 3	1
HUM	19CUL101	Cultural Education - I	2 0 0	2
		TOTAL	33	23

SEMESTER II

Cat.	Code	Title	L T P	Credit
SCI	19MAT111	Multivariable Calculus	2 0 0	2
SCI	19MAT112	Linear Algebra	2 1 0	3
SCI	19CHY101	Engineering Chemistry - A	2 1 0	3
SCI	19CHY181	Engineering Chemistry Lab - A	0 0 3	1
ENGG	19CSE102	Computer Programming	3 0 3	4
ENGG	19MEE182	Computer Aided Drafting	0 0 3	1
ENGG	19CIE111	Introduction to Civil Engineering	1 0 3	2
ENGG	19CIE102	Mechanics : Statics and Dynamics	2 1 0	3
ENGG	19MEE112	Basic Mechanical Engineering	3 0 0	3
ENGG	19MEE181	Manufacturing Practice	0 0 3	1
HUM	19CUL111	Cultural Education - II	2 0 0	2
		TOTAL	35	25

SEMESTER III

Cat.	Code	Title	L T P	Credit
SCI	19MAT208	Transforms & Partial Differential Equations	3 0 0	3
ENGG	19CIE201	Solid Mechanics	2 1 3	4
ENGG	19CIE202	Principles of Fluid Mechanics	2 1 0	3
ENGG	19CIE203	Principles of Surveying	2 1 3	4
ENGG	19CIE204	Construction Materials and Methods	2 1 0	3
HUM		Free Elective I**	2 0 0	2
HUM	19MNG300	Disaster Management		P/F
HUM	19AVP201	Amrita Value Programme I	1 0 0	1
		TOTAL	24	20

SEMESTER IV

Cat.	Code	Title	L T P	Credit
SCI	19MAT215	Complex Analysis & Probability Theory	3 1 0	4
ENGG	19CIE211	Geology & Soil Mechanics	2 1 0	3
ENGG	19CIE212	Structural Analysis	3 1 0	4
ENGG	19CIE213	Hydraulic Engineering	2 1 0	3
ENGG	19CIE214	Transportation Engineering I	2 1 0	3
ENGG	19CIE281	Hydraulic Engineering Laboratory	0 0 3	1
ENGG	19CIE282	Materials Testing and Evaluation	0 1 3	2
HUM	19SSK211	Soft Skills I	1 0 3	2
HUM	19AVP211	Amrita Value Programme II	1 0 0	1
		TOTAL	29	23

SEMESTER V

Cat.	Code	Title	L T P	Credit
ENGG	19CIE301	Geotechnical Engineering	2 1 0	3
ENGG	19CIE302	Environmental Engineering I	2 1 0	3
ENGG	19CIE303	Basic Reinforced Concrete Design	3 1 0	4
ENGG	19CIE304	Transportation Engineering II	1 1 0	2
ENGG		Professional Elective I*	3 0 0	3
ENGG	19CIE381	Computer aided Civil Engineering Drawing	1 0 3	2
ENGG	19CIE382	Geotechnical Engineering Laboratory	0 0 3	1
PRJ	19CIE390	Industry Internship (Vacation)	0 0 3	P/F
ENGG	19LIV390	[Live-in - Labs]***		[3]
HUM	19SSK301	Soft Skills II	1 0 3	2
HUM	19ENV300	Environmental Science	0 0 3	P/F
		TOTAL	32	21[+3]

SEMESTER VI

Cat.	Code	Title	L T P	Credit
ENGG		Professional Elective II*	3 0 0	3
ENGG	19CIE311	Environmental Engineering II	2 0 3	3
ENGG	19CIE312	Basic Steel Design	3 1 0	4
ENGG	19CIE313	Estimation, Costing and Professional Practice	2 0 3	3
ENGG	19CIE314	Hydrology & Water Resources Engineering	2 1 0	3
ENGG		Professional Elective III*	3 0 0	3
HUM	19SSK311	Soft Skills III	1 0 3	2
HUM	19LAW300	Indian Constitution	0 0 3	P/F
ENGG	19LIV490	[Live-in -Labs]***		[3]
		TOTAL	30	21[+3]

SEMESTER VII

Cat.	Code	Title	L T P	Credit
ENGG	19CIE402	Construction Management	2 1 0	3
ENGG		Professional Elective IV*	3 0 0	3
ENGG	19CIE401	Structural Design and Detailing	0 2 3	3
ENGG		Professional Elective V*	3 0 0	3
ENGG	19CIE491	Professional project	0 1 3	2
PRJ	19CIE492	Comprehensive Examination	0 0 3	1
PRJ	19CIE490	Industry Internship (Vacation)	0 0 3	P/F
PRJ	19CIE495	Minor Project	0 0 6	2
		TOTAL	30	17

SEMESTER VIII

Cat.	Code	Title	L T P	Credit
HUM		Free Elective II**	2 1 0	3
ENGG		Professional Elective VI*	3 0 0	3
PRJ	19CIE499	Project	0 0 30	10
		TOTAL	36	16

		TOTAL CREDITS		166
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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-Lab project, can be exempted from registering for an Elective course in the higher semester.

PROFESSIONAL ELECTIVE COURSES (with Pre Requisite)				
Structural Engineering				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE431	Advanced Concrete Design	3 0 0	3
ENGG	19CIE432	Advanced Steel Design	3 0 0	3
ENGG	19CIE433	Advanced Structural Analysis	3 0 0	3
ENGG	19CIE434	Prestressed Concrete - Analyses, Design and Construction	3 0 0	3
ENGG	19CIE435	Structural Dynamics & Seismic Design	3 0 0	3
ENGG	19CIE437	Bridge Engineering	3 0 0	3
ENGG	19CIE438	Finite Element Methods	3 0 0	3
Geotechnical Engineering				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE451	Ground Improvement Techniques	3 0 0	3
ENGG	19CIE452	Advanced Foundation Engineering	3 0 0	3
ENGG	19CIE453	Environmental Geotechnology	3 0 0	3
Environmental Engineering				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE471	Advanced Environmental Engineering	3 0 0	3
ENGG	19CIE472	Industrial Waste Treatment	3 0 0	3
Construction Technology and Management				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE441	Concrete Technology	3 0 0	3
ENGG	19CIE442	Repair and Rehabilitation of Structures	3 0 0	3
ENGG	19CIE443	Introduction to Architectural Science	3 0 0	3
ENGG	19CIE444	Sustainable Construction	3 0 0	3
ENGG	19CIE445	Construction Economics and Finance	3 0 0	3
Transportation Engineering				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE461	Pavement Design	3 0 0	3
ENGG	19CIE462	Urban Transportation Planning	3 0 0	3
ENGG	19CIE463	Traffic Engineering and Management	3 0 0	3
Hydraulics and Water Resources Engineering				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE473	Ground Water Hydrology	3 0 0	3
ENGG	19CIE474	Water Resources Systems Planning and Design	3 0 0	3

PROFESSIONAL ELECTIVE COURSES (without Pre Requisite /Open to all)				
Cat.	Code	Title	L T P	Credit
ENGG	19CIE475	Environmental Impact Assessment	3 0 0	3
ENGG	19CIE476	Remote sensing & GIS	3 0 0	3
ENGG	19CIE477	Transportation System Management and Control	3 0 0	3

PROFESSIONAL ELECTIVES UNDER SCIENCE STREAM

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	19MNG331	Financial Management	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