

UG CURRICULUM GUIDELIENS

Total Credit in BTech	160				
Professional courses	81				
	Professional core: 33	courses from Engineering disciplines (EC,CS,ME)			
	Professional Ele: 34 -38	courses from Engineering disciplines (EC,CS,ME)			
	Project: up to 04-08	Project from all disciplines (EC,CS,ME, NS, DS)			
	Professional Lab: 6	courses from Engineering disciplines (EC,CS,ME)			
Core courses (ES+NS+DS+MN+HS)	79				
	Engineering Science (ES): 30	courses from different disciplines (core+elective)			
	Natural Science(NS): 21	Courses from natural Science(core+elective)			
	Humanities (HS): 12	Courses from English, Environmental Science and others (core+elective)			
	Design (DS): 8	Courses of Design in nature (core)			
	Manufacturing (MN):4	Courses of Manufacturing in nature (core)			
	Management Science (MS):4	Courses of Management in nature (core)			
External PBI	12 credit (against 3 prof. Electives) in 7 th Sem. 8 credits to be earned from other semester where atleast 4 credits should be before PBI. Coordination of PBI will be done by Discipline.				
Optional Project	A student can choose project starting from first semester and can register at any time in a year after discussing with faculty mentor. The project will be of two credits in a year. A student can earn maximum of 6 credits within 3 years and he/she may get relaxation of 6 credits in the curriculum (Including PBI/Project) as per his/her choice. The evaluation of this optional project will be in the summer by an approved committee at the discipline level. The weightage of grading will be: Faculty menter-70%, committee-30%. The faculty mentor will be convener of the process of evaluation of his student.				
Academic load and the credit for a given course	Academic Load: $AL = 3.0 \times L + 1.0 \times T + 1.5 \times P + 0.0 \times D + 1.5 \times PR$ (L: Lecture Hours, T: Tutorial Hours, P: Practice or Lab Hours, D: Discussion Hours and Pr =Project hour)				
Academic Load AL			Course Weightage or Units		
Course Credits or Units	≤ 06		2		
	$> 06 - \leq 08 / (06, 08]$		3		
	(08, 11]		4		
	(11, 13]		5		
	>13		6		
Grading					
A+	10	C+	6	F	2
A	9	C	5	S	Satisfactory
B+	8	D+	4	X	Unsatisfactory
B	7	D	3	CD	Course Drop

UG Curriculum Structure

Sem1	Sem2	Sem3	Sem4
NS1, (3L+1T, 4C) NS101: Mathematics-I	NS3,(3L+1T, 4C) NS103: Mathematics-II	NS5 (Elect), (3L+1T , 4C) Course of NS nature and can be floated by any discipline NS205a,b.....	ES5 (3L, 4C) Core courses(Engg Discipline) ES205:Fundamentals of Robotics
NS2, (2L+1T+2P, 4C) NS102: Engineering Mechanics	NS4, (3L+1T+2P, 5C) NS104: Electrodynamics and Optics	ES4, (3L, 4C) Core courses(Engg Discipline) ES204: Digital Electronics	MS1 (3L, 4C) Core course, Management MS201: Management Concepts and Technology
HS1, (2L+1D, 2C) HS101: Effective Communication Skills	HS2, (2L+1GD, 2C) HS102: Culture and Human values	MN1, (2L+2P, 4C) MN201: Manufacturing process	Prof C3(3L+1T,4C) EC203: Network Analysis and synthesis ME203: Thermodynamics CS203: Computer Organization and Architecture
ES1, (3L+2P, 5C) ES101: Fundamental of Electrical & Electronics Engg.	DS1, (1L+3P, 3C) DS101: Engineering Graphics	Prof C1, (3L+2P, 5C) EC201: Electronics Devices and Circuits ME201: Kinematics and Dynamics of Machines CS201: DBMS	Prof C4(3L,4C) EC204: Signals and Systems ME204:Solid Mechanics CS204:Design & Analysis of Algorithm
ES2, (2L+2P, 4C) ES102: Fundamental of Computing	ES3, (3L+2P, 5C) ES103: Data structure and Algorithm	Prof C2, (2L, 2C) EC202: Instrumentation and Measurement ME202: IT Workshop (3P) CS202: OOPs with Java (1L+2P, 2C)	Prof C5 (2L,2C) EC205: Microprocessor and interfacing ME205: Engg Material CS205: Data Communication
			Prof Lab1(3P,2C) EC206L: Microprocessor +Electronics ME206L: Thermodynamics + Solid Mechanics CS206L: Lab based Project 1 (CSE)
PR101: Project (Optional), 2C		PR201: Project (Optional), 2C	

Sem5	Sem6	Sem7	Sem8
DS2 (2L+4P, 5C) DS302: Engineering design (incl design & Fabrication project)	HS3(3L,4C) Open elective2 from HS HS303a,b...	ES6 (3L, 4C) Core Elective from an Engineering Discipline floated for other disciplines ES406a,b...	ES7/HS5/NS6/DS3/MN2 (3L,4C) Open elective3 All streams ES407a,b... HS405a,b... NS406a,b... DS403a,b... MN402a,b...
Prof C6(3L,4C) EC307: Fundamental of Electromagnetic Theory ME307: Manufacturing Technology CS307: Computer Network	HS4(3L, 4C), (Core course) HS304: Environmental Science	Prof El 4(3L,4C) EC416a,b... ME416a,b... CS416a,b...	Prof El 7(3L,4C) EC419a,b... ME419a,b... CS419a,b...
Prof C 7(3L+1T,4C) EC308: Control Systems ME308: Fluid Mechanics CS308: Operating System	Prof C9(3L,4C) EC312: Linear Integrated Circuit Design ME312: HMT CS312: Software Engineering	Prof El 5(3L,4C) EC417a,b... ME417a,b... CS417a,b...	Prof El 8(3L,4C) EC420a,b... ME420a,b... CS420a,b...
Prof C 8(3L,4C) EC309: Principle of Communication ME309: Design of Mechanical Components CS309: Language Theory	Prof El 2(3L,4C) EC313a,b... ME313a,b... CS313a,b...	Prof El 6(3L,4C) EC418a,b... ME418a,b... CS418a,b...	Prof El 9(3L,4C) EC421a,b... ME421a,b... CS421a,b...
ProfEl 1(2L,2C) EC310a,b... ME310a,b... CS310a,b...	Prof El3(3L,4C) EC314a,b... ME314a,b... CS314a,b...	Project(4C) PR499 PR499 PR499	Project(4C) or Prof El 10(3L,4C) PR499, PR499, PR499 or EC422a,b... ME422a,b... CS422a,b...
Prof Lab 2(3P,2C) EC311L: Control systems+Communication ME311L: FM&ST CS311L: Lab based Project 2	Prof Lab 3(3P,2C) EC315L: DSP+Microwave ME315L: Adv. Manufacturing + NCCNC CS315L: Lab based Project 3		
PR301: Project (Optional), 2C			

Electives

Course Type	Course Code	Course Name	Credits	Semester
Engineering Science(ES)-6	ES406a	Communication Systems	3L, 4C	VII
	ES406b	Electrical Drives and Control	3L, 4C	
	ES406c	Sensors and Actuators	3L, 4C	
	ES406d	Geometric Modelling	3L, 4C	
	ES406e	Computer Graphics	3L, 4C	
	ES406f	Computer networks	3L, 4C	
Engineering Science(ES)-7	ES407a	Fundamentals of RF & Microwave Electronics	3L, 4C	VIII
	ES407b	Internet of things	3L, 4C	
	ES407c	Applied Photonics	3L, 4C	
	ES407d	Operations Research	3L, 4C	
	ES407e	IoT	3L, 4C	
	ES407f	Social network Analysis	3L, 4C	
	HS405a	Culture and Technology	3L, 4C	
Natural Science(NS)-5	NS205a	Advanced Engineering Mathematics	3L, 4C	III
	NS205b	Analytical Methods in Engineering	3L, 4C	
	NS205c	Discrete Mathematics	3L, 4C	
	NS205d	Applied Probability and Statistics	3L, 4C	
	NS205e	Numerical Methods	3L, 4C	
	NS205f	Optimization	3L, 4C	
	NS205g	Modern Physics	3L, 4C	
	NS205h	Material Science	3L, 4C	
	NS205i	Culture and Science-a comparison	3L, 4C	
Humanity Science(HS)-3	HS303a	Soft Skills and use of English Language	3L, 4C	VI
	HS303b	Literature in Social Cultural Panorama	3L, 4C	
	HS303c	Indian Philosophy and Literature in English	3L, 4C	
Prof Elective-1	EC310a	Computer Networks	2L, 2C	V
	EC310b	Digital System Design	2L, 2C	
	EC310c	Intelligent Control	2L, 2C	
	ME310a	Steam Turbine	2L, 2C	
	ME310b	Steam Generators	2L, 2C	
	ME310c	Gas Dynamics	2L, 2C	
	CS310a	Soft Computing	2L, 2C	
	CS310b	Parallel Computing	2L, 2C	
	CS310c	Coding Theory	2L, 2C	
Prof Elective-2	EC313a	Digital Communication	3L, 4C	VI
	EC313b	Digital Signal Processing	3L, 4C	
	EC313c	IC Fabrication	3L, 4C	
	ME313a	Finite Element Methods	3L, 4C	
	ME313b	CNC Machine Tools and Programming	3L, 4C	
	ME313c	Computer Aided Design	3L, 4C	
	CS313a	Image Processing	3L, 4C	
	CS313b	Network Security & Cryptography	3L, 4C	
	CS313c	Artificial Intelligence	3L, 4C	

Prof Elective-3	EC314a	Antenna Theory & Design	3L, 4C	VI
	EC314b	Wavelet and Filter Bank	3L, 4C	
	EC314c	Biomedical Instrumentation	3L, 4C	
	ME314a	Vibration of Mechanical Systems	3L, 4C	
	ME314b	Computer Aided Design	3L, 4C	
	ME314c	Computational Fluid Dynamics	3L, 4C	
	CS314a	Wireless and Mobile networks	3L, 4C	
	CS314b	Machine Learning	3L, 4C	
	CS314c	Human Computer Interactions	3L, 4C	
	CS314d	Compiler Design	3L, 4C	
Prof Elective-4	EC416a	Advanced Analog Circuits Design	3L, 4C	VII
	EC416b	Detection and Estimation Theory	3L, 4C	
	EC416c	Industrial Microwave and Communication	3L, 4C	
	ME416a	Energy Conversion Device	3L, 4C	
	ME416b	Industrial Instrumentation & Metrology	3L, 4C	
	ME416c	Rapid Product Development Technologies	3L, 4C	
	CS416a	Pattern Recognition	3L, 4C	
	CS416b	Internet Technology	3L, 4C	
	CS416c	Cyber Security	3L, 4C	
	CS416d	Computational Geometry	3L, 4C	
Prof Elective-5	EC417a	Satellite Communication	3L, 4C	VII
	EC417b	Mixed-Mode Circuit Design	3L, 4C	
	EC417c	Power System Engineering	3L, 4C	
	ME417a	Mechanical Vibration and Condition Monitoring	3L, 4C	
	ME417b	Advance Manufacturing Processes	3L, 4C	
	ME417c	Automobile Engineering	3L, 4C	
	CS417a	Advanced Computer Architecture	3L, 4C	
	CS417b	Cloud Computing	3L, 4C	
	CS417c	Object Oriented Analysis and Design	3L, 4C	
Prof Elective-6	EC418a	Time Frequency Analysis	3L, 4C	VII
	EC418b	Radio Frequency Integrated Circuits Design	3L, 4C	
	EC418c	Physics of Semiconductor Devices	3L, 4C	
	ME418a	Advance Solid Mechanics	3L, 4C	
	ME418b	Management of Production System	3L, 4C	
	ME418c	Design of Mechanical Systems	3L, 4C	
	CS418a	Complex Networks	3L, 4C	
	CS418b	Data Mining and Data Warehousing	3L, 4C	
	CS418c	Advanced Algorithms	3L, 4C	
CS318d	Mesh Free Computations	3L, 4C		
Prof Elective-7	EC419a	RF and Microwave Engineering	3L, 4C	VIII
	EC419b	Power Electronics	3L, 4C	
	EC419c	Advanced Filter Design	3L, 4C	
	ME419a	Computer Integrated Manufacturing	3L, 4C	
	ME419b	Fracture and Fatigue	3L, 4C	
	ME419c	Refrigeration and Air Conditioning	3L, 4C	
	CS419a	Computer Vision	3L, 4C	
	CS419b	Distributed Systems	3L, 4C	
	CS419c	Quantitative Methods in Software Engineering	3L, 4C	

Prof Elective-8	EC420a	Advanced Control Systems	3L, 4C	VIII
	EC420b	VLSI Test and Testability	3L, 4C	
	EC420c	Information Theory and Coding	3L, 4C	
	ME420a	Optimization Techniques	3L, 4C	
	ME420b	Mechanics of Composite Materials	3L, 4C	
	ME420c	Metal Forming	3L, 4C	
	CS420a	Big Data Analytics	3L, 4C	
	CS420b	Principles of Programming Languages	3L, 4C	
	CS420c	Approximation Algorithms	3L, 4C	
	CS420d	Randomized Algorithms	3L, 4C	
Prof Elective-9	EC421a	CMOS Memory Design	3L, 4C	VIII
	EC421b	Image Processing	3L, 4C	
	EC421c	Optical Communication	3L, 4C	
	ME421a	IC Engine	3L, 4C	
	ME421b	Gas Turbine and Propulsion	3L, 4C	
	ME421c	Quality, Reliability and Maintenance Engineering	3L, 4C	
	CS421a	Image Reconstruction	3L, 4C	
	CS421b	S/W testing and Quality Assurance	3L, 4C	
	CS421c	Statistical Methods in Computer Science	3L, 4C	
Prof Elective-10	EC422a	Nanophotonics and Plasmonics	3L, 4C	VIII
	EC422b	Application of Signal and Image Processing	3L, 4C	
	EC422c	Renewal Energy System	3L, 4C	
	ME422a	Smart Materials and Structures	3L, 4C	
	ME422b	Fault Diagnosis and Prognosis for Engineering Systems	3L, 4C	
	ME422c	Robot Kinematics and Dynamics	3L, 4C	
	CS422a	Natural Language Processing	3L, 4C	
	CS422b	Visual Cryptography & Data Hiding	3L, 4C	
	CS422c	Model Thinking	3L, 4C	