13. Courses of Study and Scheme of Assessment

BTECH INFORMATION TECHNOLOGY

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(2015 REGULATIONS)
(Minimum Credits to be Earned: 183)

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Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER I									
15I101	Calculus and its Applications	3	2	0	4	50	50	100	BS
15I102	Physics	3	0	0	3	50	50	100	BS
15I103	Chemistry	3	0	0	3	50	50	100	BS
15I104	Basics of Electrical Engineering	3	0	0	3	50	50	100	ES
15I105	C Programming	3	0	0	3	50	50	100	ES
15Z104	English Language Proficiency	2	2	0	3	50	50	100	HS
15I110	Engineering Graphics	0	0	4	2	100	-	100	ES
15I111	Physics Laboratory I	0	0	2	1	100	-	100	BS
15I112	Chemistry Laboratory I	0	0	2	1	100	-	100	BS
15I113	C Programming Laboratory	0	0	4	2	100	-	100	ES
15I214	Personality and Character Development	0	0	Refer sem 2 and footnote					MC
	Total 33 hrs	**17**	**4**	**12**	**25**	**700**	**300**	**1000**	
SEMESTER II									
15I201	Complex Variables and Transforms	3	2	0	4	50	50	100	BS
15I202	Basics of Electronic Devices and Circuits	3	0	0	3	50	50	100	BS
15I203	Object Oriented Programming	3	0	0	3	50	50	100	BS
15I204	Materials Science	3	0	0	3	50	50	100	ES
15I205	Applied Electrochemistry	3	0	0	3	50	50	100	ES
15Z___	Language Elective	3	0	0	3	50	50	100	HS
15I210	Engineering Practices	0	0	2	1	100	-	100	ES
15I211	Physics Laboratory II	0	0	2	1	100	-	100	BS
15I212	Chemistry Laboratory II	0	0	2	1	100	-	100	BS
15I213	Object Oriented Programming Laboratory	0	0	4	2	100	-	100	ES
15I214	Personality and Character Development	0	0	**	Grade	-	-	-	MC
	Total 30 hrs	**18**	**2**	**10**	**24**	**700**	**300**	**1000**	

CAT-Category; BS – Basic Science; HS – Humanities & Social Sciences; ES – Engineering Sciences; PC – Professional Core; PE – Professional Elective; EEC – Employability Enhancement Course; MC – Mandatory Course.

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			Hours/Week					**Maximum Marks**	
SEMESTER II Summer Term$^{€}$									
15I215	Professional Skills	6	0	9	2	100	-	100	EEC
15I216	In-Plant Training and Technical Seminar	6	0	9	2	100	-	100	EEC
	Total 30 Hrs	**12**	**0**	**18**	**4**	**200**	**-**	**200**	

CA   - Continuous Assessment
FE   - Final Examination
**   - Total 40 hrs in semesters I & II put together.
Grade: Completed / Not Completed.
€   - These courses will be conducted prior to the commencement of the third semester for a period of 4 weeks during summer term.

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BTECH INFORMATION TECHNOLOGY (2015 REGULATIONS)

Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
				Hours/Week				Maximum Marks	
SEMESTER III									
15I301	Linear Algebra and Numerical Analysis	3	2	0	4	50	50	100	BS
15I302	Computer Architecture	2	2	0	3	50	50	100	ES
15I303	Data Structures	3	0	0	3	50	50	100	PC
15I304	Analog and Digital Communication	3	0	0	3	50	50	100	PC
15I305	Environmental Science and Engineering	3	0	0	3	50	50	100	HS
15Z070	Economics for Engineers	3	0	0	3	50	50	100	HS
15I310	Data Structures Laboratory	0	0	4	2	100	-	100	PC
15I311	Digital Logic Design Laboratory	0	0	4	2	100	-	100	ES
	Total 29 hrs	**17**	**4**	**8**	**23**	**500**	**300**	**800**	
SEMESTER IV									
15I401	Probability , Statistics and Random Processes	3	2	0	4	50	50	100	BS
15I402	Digital Signal Processing	2	2	0	3	50	50	100	PC
15I403	Operating Systems	3	0	0	3	50	50	100	PC
15I404	Database Management Systems	3	0	0	3	50	50	100	PC
15I405	Software Engineering	3	0	0	3	50	50	100	PC
15____	Open Elective I*	3	0	0	3	50	50	100	OE
15I410	Operating Systems Laboratory	0	0	4	2	100	-	100	PC
15I411	Database Management Systems Laboratory	0	0	4	2	100	-	100	PC
	Total 29 hrs	**17**	**4**	**8**	**23**	**500**	**300**	**800**	

CA   - Continuous Assessment, FE - Final Examination

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* – LTPC for open electives can be either 3 0 0 3 or 2 2 0 3.

BTECH INFORMATION TECHNOLOGY

(2015 REGULATIONS)

Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
		Hours/Week						**Maximum Marks**	
SEMESTER V									
15I501	Microprocessors and Interfacing	3	0	0	3	50	50	100	PC
15I502	Computer Communication Networks	3	0	0	3	50	50	100	PC
15I503	Object Oriented Modeling and Design	2	2	0	3	50	50	100	PC
15I504	Java Programming	3	0	0	3	50	50	100	ES
15I505	Design and Analysis of Algorithms	2	2	0	3	50	50	100	PC
15___	Open Elective II*	3	0	0	3	50	50	100	OE
15I510	Microprocessors and Interfacing Laboratory	0	0	4	2	100	-	100	PC
15I511	Java Programming Laboratory	0	0	4	2	100	-	100	ES
	Total 28 hrs	**16**	**4**	**8**	**22**	**500**	**300**	**800**	
SEMESTER VI									
15I601	Advanced Data Structures	3	0	0	3	50	50	100	PC
15I602	Theory of Computing	2	2	0	3	50	50	100	PC
15I603	Web Technologies	2	2	0	3	50	50	100	PC
15I604	Mobile Communication and Computing	3	0	0	3	50	50	100	PC
15___	Open Elective III*	3	0	0	3	50	50	100	OE
15I___	Professional Elective I	3	0	0	3	50	50	100	PE
15I610	Advanced Data Structures Laboratory	0	0	4	2	100	-	100	PC
15I611	Open Source Computing Laboratory	0	0	4	2	100	-	100	EEC
15I620	Innovation Practices	0	0	4	2	100	-	100	EEC
	Total 32 hrs	**16**	**4**	**12**	**24**	**600**	**300**	**900**	

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BTECH INFORMATION TECHNOLOGY   **(2015 REGULATIONS)**

Code No.	Course	Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
		Hours/Week						**Maximum Marks**	
SEMESTER VII									
15I701	Information Security	3	0	0	3	50	50	100	PC
15I702	Data Mining	3	0	0	3	50	50	100	PC
15I703	Internet of Things	3	0	0	3	50	50	100	PC
15I___	Professional Elective II	3	0	0	3	50	50	100	PE
15I___	Professional Elective III	3	0	0	3	50	50	100	PE
15I___	Professional Elective IV	3	0	0	3	50	50	100	PE
15I710	Data Mining Laboratory	0	0	4	2	100	-	100	PC
15I711	Distributed Component Laboratory	0	0	4	2	100	-	100	PC
15I720	Project Work I	0	0	4	2	100	--	100	EEC
	Total 30 hrs	**18**	**0**	**12**	**24**	**600**	**300**	**900**	
SEMESTER VIII									
15I___	Professional Elective V	3	0	0	3	50	50	100	PE
15I___	Professional Elective VI	3	0	0	3	50	50	100	PE
15I820	Project Work II	0	0	16	8	50	50	100	EEC
	Total 22 hrs	**6**	**0**	**16**	**14**	**150**	**150**	**300**	

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LANGUAGE ELECTIVES

15Z080	Communication Skills for Engineers
15Z081	Basic German
15Z082	Basic French
15Z083	Basic Japanese

OPEN ELECTIVES
(Students can opt for all open electives from single stream or several streams)

MATHEMATICS

15OH01	Advanced Linear Algebra
15OH02	Algebraic Structures
15OH03	Calculus of Variations and Tensor Analysis
15OH04	Graph Theory and its Applications
15OH05	Mathematical Finance
15OH06	Mathematical Modeling and Simulation
15OH07	Number Theory for Computing
15OH08	Operations Research
15OH09	Reliability and Quality Control
15OH10	Soft Computing
15OH11	Stochastic Models

PHYSICS

15OH20	Analytical Techniques for Materials Characterization
15OH21	Laser Technology
15OH22	Micro Electromechanical Systems
15OH23	Nanomaterials and Applications
15OH24	Physics for Solar PV Systems and Solid-State Lighting Systems
15OH25	Sensors for Engineering Applications
15OH26	Thin Film Technology
15OH27	Nonlinear Science and Engineering Applications
15OH28	Nonlinear Fiber Optics
15OH29	Chaotronics

CHEMISTRY

15OH33	Chemical Sensors and Biosensors
15OH37	Energy Storing Devices and Fuel Cells
15OH39	Modern Electronic Materials

COMPUTER APPLICATIONS

15OH46	Computer Graphics and Virtual Reality
15OH47	Data and File Structures
15OH49	High Performance Computing
15OH50	Mainframe Systems
15OH51	Mobile Application Development
15OH54	Programming in Python
15OH55	Responsive Web Design
15OH56	Social Web Mining
15OH59	Geographic Information System
15OH60	Programming for Robotics

HUMANITIES

15OH61	An Introduction to Indian Constitution
15OH62	Entrepreneurship
15OH63	Human Resource Management
15OH64	Industrial Psychology
15OH65	Principles of Management
15OH66	Business Statistics
15OH67	Disaster Management
15OH68	Financial and Managerial Accounting
15OH69	Marketing Management
15OH70	Defence Practices and Disaster Management

ENGLISH

15OH75	English and Soft Skills for Employability
15OH76	English for Competitive Examinations
15OH77	German Language – International Level A1.1
15OH78	German Language – International Level A1.2

APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES

15OH82	Optimization Techniques
15OH84	Data Visualization
15OH86	Pervasive Computing
15OH87	Parallel and Distributed Computing
15OH88	Cyber Security
15OH89	Randomized Algorithms
15OH90	Approximation Algorithms
15OH91	Network Science
15OH92	Applied Stochastic Processes
15OH93	Modelling and Simulation
15OH94	Graph Algorithms

OPEN ELECTIVES OFFERED BY ENGINEERING DEPARTMENTS

15AH01	Automotive Infotronics	(Dept. of Automobile Engineering)
15MH04	Enterprise Resource Planning	(Dept. of Mechanical Engineering)

PROFESSIONAL ELECTIVES

15I001	Artificial Intelligence
15I002	System Software
15I003	Soft Computing
15I004	Information Retrieval
15I005	Software Process Management
15I006	Wireless Adhoc Networks
15I007	Web Services and Service Oriented Architecture
15I008	Compiler Design
15I009	Cloud Computing
15I010	TCP/IP and Network Management
15I011	Digital Image Processing
15I012	Unix Internals
15I013	Multi-core Computing
15I014	Semantic Web Technologies
15I015	Big Data Analytics
15I016	Network and Internet Security
15I017	Information Ethics
15I018	Client Server Computing
15I019	Embedded Systems

ONE CREDIT COURSES

OFFERED BY THE DEPARTMENT

15IF01	Virtualization
15IF02	Unified Communication Services
15IF03	Human Computer Interface
15IF04	Ontology Engineering
15IF05	Next Generation IP Networks
15IF06	Android Application Development
15IF07	Computer Graphics in Practice
15IF08	Software Quality and Automated Testing
15IF09	Machine to Machine Communication
15IF10	Cyber Crime Investigation and Ethical Hacking
15IF11	Multi-core Technology
15IF12	Network Vulnerability Analysis and Countermeasures
15IF13	Bigdata Technologies
15IF14	Deep Learning

OFFERED BY HUMANITIES

15OF01	Export – Import Management
15OF02	Insurance and Risk Management
15OF03	Values and Ethics at Work Place
15OF04	Development of Industrialisation
15OF05	Creativity and Social Enterprise
15OF06	Social and Psychological Well Being
15OF13	Security Analysis and Portfolio Management
15OF14	Implementation of Quality Management System
15OF15	Financial Management
15OF16	Personality Development Through Transactional Analysis

OFFERED BY THE DEPARTMENT OF ENGLISH

15OF10	Corporate Communication
15OF11	Interpersonal and Organizational Communication
15OF12	Human Values Through Literature

OFFERED BY THE DEPARTMENT OF MATHEMATICS

15OF21	Principles of Business Analytics

SUMMARY OF CREDIT DISTRIBUTION

B.TECH. INFORMATION TECHNOLOGY												
S. No	Course Work subject Area	Credits Per Semester								Total Credit	Credit Range	
		I	II	III	IV	V	VI	VII	VIII		Min	Max
1	HS	3	3	6	0	0	0	0	0	12	9	18
2	BS	12	12	4	4	0	0	0	0	32	27	36
3	ES	10	9	5	-	5	0	0	0	29	27	36
4	PC	0	0	8	16	14	14	13	0	65	54	72
5	PE	0	0	0	0	0	3	9	6	18	18	27
6	OE	0	0	0	3	3	3	0	0	9	9	18
7	EEC	0	4*	0	0	0	4	2	8	18	18	27
	Total	25	24+4*	23	23	22	24	24	14	**183**	**175**	**185**

*- Summer Term

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