

Study Scheme & Syllabus of

Bachelor of Technology Information Technology

(B. Tech. I.T.)

Batch 2018 onwards



Department of Academics

IK Gujral Punjab Technical University

Bachelor of Technology in Information Technology

It is a Graduate (UG) Programme of 4 years duration (8 semesters)

Courses & Examination Scheme:

Third Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTES 301-18	Engineering Science Course	Digital Electronics	3	0	0	40	60	100	3
BTIT 301-18	Professional Core Courses	Data structure & Algorithms	3	0	0	40	60	100	3
BTIT 302-18	Professional Core Courses	Object Oriented Programming	3	0	0	40	60	100	3
BTAM 301-18	Basic Science Course	Mathematics-III	3	0	0	40	60	100	3
BTES 301-18	Engineering Science Course	Computer Architecture	3	0	0	40	60	100	3
BTES 302-18	Engineering Science Course	Digital Electronics Lab	0	0	2	30	20	50	1
BTIT 303-18	Professional Core Courses	Data structure & Algorithms Lab	0	0	4	30	20	50	2
BTIT 304-18	Professional Core Courses	Object Oriented Programming lab.	0	0	4	30	20	50	2
BTIT 305-18	Professional Core Courses	IT Workshop	0	0	2	30	20	50	1
Total			15	0	12	320	380	700	21

IK Gujral Punjab Technical University, Kapurthala
B. Tech. Information Technology, Batch 2018 onwards

Fourth Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTIT 401-18	Professional Core Courses	Discrete Mathematics	3	1	0	40	60	100	4
BTIT 402-18	Professional Core Courses	Computer Networks	3	0	0	40	60	100	3
BTIT 402-18	Professional Core Courses	Operating Systems	3	0	0	40	60	100	3
BTIT 403-18	Professional Core Courses	Design & Analysis of Algorithms	3	0	0	40	60	100	3
BTHU 401-18	Humanities & Social Sciences including Management Courses	Management-1 (Organizational Behaviour/ Finance & Accounting)	3	0	0	40	60	100	3
EVS102	Mandatory Courses	Environmental Sciences	-	-	-	-	-	-	0
BTIT 405-18	Professional Core Courses	Computer Networks Lab	0	0	2	30	20	50	1
BTIT 404-18	Professional Core Courses	Operating Systems Lab	0	0	4	30	20	50	2
BTIT 405-18	Professional Core Courses	Design & Analysis of Algorithms Lab	0	0	4	30	20	50	2
Total			15	1	10	290	360	650	21

IK Gujral Punjab Technical University, Kapurthala
B. Tech. Information Technology, Batch 2018 onwards

Fifth Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTIT 501-18	Professional Core Courses	Formal Language & Automata Theory	3	0	0	40	60	100	3
BTIT 501-18	Professional Core Courses	Database Management Systems	3	0	0	40	60	100	3
BTIT 502-18	Professional Core Courses	Programming in Java	3	0	0	40	60	100	3
BTIT 503-18	Professional Core Courses	Software Engineering	3	0	0	40	60	100	3
BTHU 501-18	Humanities & Social Sciences including Management Courses	Humanities-I	3	0	0	40	60	100	3
BTIT XXX-18	Professional Elective	Elective-I	3	0	0	40	60	100	3
MC	Mandatory Courses	Constitution of India/ Essence of Indian Traditional Knowledge	-	-	-	-	-	-	0
BTIT 504-18	Professional Core Courses	Database Management Systems Lab	0	0	4	30	20	50	2
BTIT 505-18	Professional Core Courses	Programming in Java Lab	0	0	4	30	20	50	2
Total			18	0	8	300	400	700	22

IK Gujral Punjab Technical University, Kapurthala
B. Tech. Information Technology, Batch 2018 onwards

Sixth Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTIT 601-18	Professional Core Courses	Big Data	3	0	0	40	60	100	3
BTIT 602-18	Professional Core Courses	Web Technologies	3	0	0	40	60	100	3
BTIT YYY-18	Professional Elective Courses	Elective-II	3	0	0	40	60	100	3
BTIT ZZZ-18	Professional Elective Courses	Elective-III	3	0	0	40	60	100	3
BTOE ***	Open Elective Courses	Open Elective-I (Humanities)	3	0	0	40	60	100	3
BTIT 603-18	Project	Project-1	0	0	6	60	40	100	3
BTIT 604-18	Professional Core Courses	Big Data Lab	0	0	4	30	20	50	2
BTIT 605-18	Professional Core Courses	Web Technologies Lab	0	0	4	30	20	50	2
Total			15	0	14	320	380	700	22

Seventh Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTIT UUU-18	Professional Elective Courses	Elective-IV	3	0	0	40	60	100	3
BTIT VVV-18	Professional Elective	Elective-V	3	0	0	40	60	100	3
BTOE ***	Open Elective Courses	Open Elective-II	3	0	0	40	60	100	3
BTIT 701-18	Professional Core Courses	Software Testing and Quality Assurance	3	0	0	40	60	100	3
BTIT 702-18	Project	Project-II	0	0	12	100	50	150	6
BTIT 703-18	Professional Training	Industrial *Training	-	-	-	60	40	100	2
Total			12	0	12	320	330	650	20

* The students will take 6-8 weeks summer training in Industry after semester 6th.

Eighth Semester

Course Code	Type of Course	Course Title	Hours per Week			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
BTIT XXX-18	Professional Elective Courses	Elective-VI	3	0	0	40	60	100	3
BTOE ***	Open Elective Courses	Open Elective-III	3	0	0	40	60	100	3
BTOE ***	Open Elective Courses	Open Elective-IV	3	0	0	40	60	100	3
BTIT 801-18	Project	Project-III	0	0	12	100	50	150	6
Total			9	0	12	220	230	450	15

LIST OF ELECTIVES

Elective-I

- BTIT 506-18** E-Commerce
- BTIT 507-18** Cyber Laws and IPR
- BTIT 508-18** Computational Biology
- BTIT 509-18** Artificial Intelligence

Elective-II

- BTIT 606-18** Fundamentals of Virtualization
- BTIT 607-18** Distributed Systems
- BTIT 608-18** Machine Learning
- BTIT 609-18** Agile Software Development

Elective-III

- BTIT 610-18** Cryptography and Network Security
- BTIT 611-18** Management Information System
- BTIT 612-18** Digital Image Processing
- BTIT 613-18** Cloud Computing

Elective-IV

- BTIT 702-18** Software Project Management
- BTIT 703-18** Distributed Operating System
- BTIT 704-18** Soft Computing
- BTIT 705-18** Human Computer Interaction

Elective-V

- BTIT 706-18** Data Mining
- BTIT 707-18** Ad-Hoc and Sensor Networks
- BTIT 708-18** Speech and Natural Language Processing
- BTIT 709-18** Network Programming

Elective-VI

- BTIT 802-18** Internet of Things
- BTIT 803-18** Real Time Systems
- BTIT 804-18** Data Analytics
- BTIT 805-18** Modelling and Simulation

LIST OF OPEN ELECTIVES

Open Elective-I

1. Soft skills and interpersonal communication
2. Cyber law and ethics
3. Human resource development and organizational behavior
4. Economics policies in India

Open electives offered by the department:

Courses of odd semesters:

BTIT301-18 Data Structures & Algorithms

BTIT503-18 Object Oriented Programming

BTIT501-18 Database Management System

Courses of even semesters:

BTES401-18 Computer Architecture

BTIT402-18 Operating System

BTIT602-18 Computer Networks

IK Gujral Punjab Technical University, Kapurthala
B. Tech. Information Technology, Batch 2018 onwards

LIST OF COURSES FOR HONOURS DEGREE

In order to have an Honours degree, a student choose 18-20 credits from the following courses in addition.

Course Code	Type of courses	Course Title	Hours per Week			Marks Distributions		Total Marks	Credits
			L	T	P	Internal	External		
BTIT H01-18	Professional Elective Courses	Graph Theory	3	0	0	40	60	100	3
BTIT H02-18	Professional Elective Courses	Computer Graphics	3	0	0	40	60	100	3
BTIT 611-18	Professional Elective Courses	Digital Signal Processing	3	0	0	40	60	100	3
BTITH03-18	Professional Elective Courses	Software Project Management	3	0	0	40	60	100	3
BTIT H04-18	Professional Elective Courses	Parallel Computing	3	0	0	40	60	100	3
BTIT H05-18	Professional Elective Courses	Optimization Techniques	3	0	0	40	60	100	3
BTIT 804-18	Professional Elective Courses	Data Analytics	3	0	0	40	60	100	3
BTIT 608-18	Professional Elective Courses	Business Intelligence	3	0	0	40	60	100	3
BTIT H06-18	Professional Elective Courses	ICT in Agriculture and Rural Development	3	0	0	40	60	100	3
BTIT H07-18	Professional Elective Courses	Semantic Web	3	0	0	40	60	100	3
BTIT H08-18	Professional Elective Courses	Bio Informatics	3	0	0	40	60	100	3
BTIT H09-18	Professional Elective Courses	Advanced Algorithms	3	0	0	40	60	100	3