

ACADEMIC CURRICULUM

(REGULATIONS 2019)

FOR

UNDER GRADUATE PROGRAMMES

CHOICE BASED CREDIT SYSTEM

(Applicable to the students admitted from the Academic Year 2019-20 onwards)

B.TECH – INFORMATION TECHNOLOGY



EASWARI ENGINEERING COLLEGE

(AUTONOMOUS INSTITUTION)

Bharathi Salai, Ramapuram, Chennai – 600 089

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SEMESTER I								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191LEH101T	Technical English	HS	3	-	-	-	3
2.	191MAB101T	Engineering Mathematics - I	BS	3	2	-	-	4
3.	191PYB101T	Engineering Physics	BS	3	-	-	-	3
4.	191CYB101T	Engineering Chemistry	BS	3	-	-	-	3
5.	191GES101T	Engineering Graphics	ES	2	-	4	-	4
6.	191GES102T	Problem Solving through Python Programming	ES	3	-	-	-	3
LABORATORY								
7.	191GEB111L	Physics and Chemistry Laboratory	BS	-	-	4	-	2
8.	191GES111L	Python Programming Laboratory	ES	-	-	3	1	2
TOTAL CREDITS								24
MANDATORY COURSE								
9.	191GEM101L	Induction Training &	MC	-	-	2	-	1 ^{&}

[&] Mandatory to attend Induction training programme and earn one credit.

SEMESTER II								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191LEH201T	Professional Communication/ BEC Certification	HS	3	-	-	-	3
2.	191MAB201T	Engineering Mathematics - II	BS	3	2	-	-	4
3.	191PYB202T	Physics for Information Science	BS	3	-	-	-	3
4.	191GES201T	Basic Electrical and Electronics Engineering	ES	3	-	-	-	3
5.	191GES204T	Programming in C	ES	3	-	-	-	3
LABORATORY								
6.	191GES211L	Engineering Practices Laboratory	ES	-	-	4	-	2
7.	191GES214L	C Programming Laboratory	ES	-	-	3	1	2
TOTAL CREDITS								20
MANDATORY COURSE								
8.	191CYM201T	Environmental Science ^{&&}	MC	3	-	-	-	3 ^{&&}
9.	191GEM211L	NSS / NCC / YRC -Phase - I*	MC	-	-	2	-	1*

^{&&} Mandatory to register for the course and earn three credits

* The student may opt for any one. They have to complete the respective Phase II and Phase III. Those who are not opting NSS/NCC/YRC have to opt for Foreign language / Indian constitution in the sixth semester.

SEMESTER III								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191MAB302T	Discrete Mathematics	BS	3	2	-	-	4
2.	191ECS321T	Digital Principles and System Design	ES	3	-	-	-	3
3.	191ITC301T	Data Structures and Algorithms	PC	3	-	-	-	3
4.	191ITC302T	Object Oriented Programming	PC	3	-	-	-	3
5.	191ITC303T	Operating Systems	PC	3	-	-	-	3
LABORATORY								
6.	191ECS331L	Digital Systems Laboratory	ES	-	-	4	-	2
7.	191ITC311L	Data Structures Laboratory	PC	-	-	4	-	2
8.	191ITC312L	Object Oriented Programming Laboratory	PC	-	-	3	1	2
HUMAN EXCELLENCE COURSE								
9.	191GEM311L	Yoga / Social Service - Phase - I**	HS	-	-	2	-	1
TOTAL CREDITS								23
EMPLOYABILITY ENHANCEMENT COURSE								
10.	191ITA311I	Inplant Training / Internship [#]	EEC	-	-	-	-	1 [#]
11.	191ITA301I	Industry Supported Course (Optional) ^{##}	EEC	1	-	-	-	1 ^{##}
ONLINE COURSE								
11.	191ITA303I	Online Course (Optional) [§]	PE	-	-	-	-	3 [§]

** Student may opt for any one. They have to complete the respective Phase II in semester V.

Mandatory to do Internship and earn minimum one credit between 3rd and 6th semester.

Students may earn credits in lieu of Professional elective - V in 8th semester. Please refer Clause 26.1.1 of B.E. Regulations 2019.

§ Online courses of three credits each can be considered in lieu of Professional Elective – IV and Professional Elective – VI. A student earned only three credits can drop only Professional Elective – VI. Please refer Clause 14.9 of B.E. Regulations 2019.

SEMESTER IV								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191MAB405T	Probability and Statistics	BS	3	2	-	-	4
2.	191ITC401T	Database Management Systems	PC	3	-	-	-	3
3.	191ITC402T	Software Engineering	PC	3	-	-	-	3
4.	191ITC403T	Computer Architecture	PC	3	-	-	-	3
5.	191ECS421T	Principles of Communication	ES	3	-	-	-	3
LABORATORY								
6.	191ITC411L	Database Management Systems Laboratory	PC	-	-	4	-	2
7.	191ITC412L	Software Engineering Laboratory	PC	-	-	3	1	2
8.	191ITC413L	Open Source Programming Laboratory	PC	-	-	4	-	2
TOTAL CREDITS								22
MANDATORY COURSE								
9.	191GEM411L	NSS / NCC / YRC -Phase -II*	MC	-	-	2	-	1*
EMPLOYABILITY ENHANCEMENT COURSE								
10.	191ITA411I	Inplant Training / Internship [#]	EEC	-	-	-	-	1 [#]
11.	191ITA401I	Industry Supported Course (Optional) ^{##}	EEC	1	-	-	-	1 ^{##}
ONLINE COURSE								
12.	191ITA403I	Online Course (Optional) ^{\$}	PE	-	-	-	-	3 ^{\$}

* Students have to complete the respective phase II.

[#] Mandatory to do Internship and earn minimum one credit between 3rd and 6th semester.

^{##} Students may earn credits in lieu of Professional elective – V in 8th semester. Please refer Clause 26.1.1 of B.E. Regulations 2019.

^{\$} Online courses of three credits each can be considered in lieu of Professional Elective – IV and Professional Elective – VI. A student earned only three credits can drop only Professional Elective – VI. Please refer Clause 14.9 of B.E. Regulations 2019.

SEMESTER V								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191MBC521T	Professional Ethics and Principles of Management	HS	3	-	-	-	3
2.	191ITC501T	Computer Networks	PC	3	-	-	-	3
3.	191ITC502T	Data warehousing and Data Mining	PC	3	-	-	-	3
4.	191ITC503T	Web Technology	PC	3	-	-	-	3
5.		Professional Elective - I	PE	3	-	-	-	3
6.		Open Elective - I	OE	3	-	-	-	3
LABORATORY								
7.	191ITC511L	Web Technology Laboratory	PC	-	-	4	-	2
8.	191ITC512L	Mobile Application Development Laboratory	PC	-	-	3	1	2
HUMAN EXCELLENCE COURSE								
9.	191GEM511L	Yoga / Social Service – Phase - II**	HS	-	-	2	-	1
TOTAL CREDITS								23
EMPLOYABILITY ENHANCEMENT COURSE								
10.	191ITA511I	In plant Training / Internship [#]	EEC	-	-	-	-	1 [#]
11.	191ITA501I	Industry Supported Course (Optional) ^{##}	EEC	1	-	-	-	1 ^{##}
ONLINE COURSE								
12.	191ITA503I	Online Course (Optional) [§]	PE	-	-	-	-	3 [§]

** Students have to complete the respective phase II.

Mandatory to do Internship and earn minimum one credit between 3rd and 6th semester.

Students may earn credits in lieu of Professional Elective - V in 8th semester. Please refer Clause 26.1.1 of B.E. Regulations 2019.

§ Online courses of three credits each can be considered in lieu of Professional Elective – IV and Professional Elective – VI. A student earned only three credits can drop only Professional Elective – VI. Please refer Clause 14.9 of B.E. Regulations 2019.

SEMESTER VI								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191ITC601T	Mobile Computing	PC	3	-	-	-	3
2.	191ITC602T	Artificial Intelligence	PC	3	-	-	-	3
3.	191ITC603T	Embedded Systems and IoT Applications	PC	3	-	-	-	3
4.		Professional Elective - II	PE	3	-	-	-	3
5.		Open Elective - II	OE	3	-	-	-	3
LABORATORY								
6.	191ITC611L	Networks Laboratory	PC	-	-	4	-	2
7.	191ITC612L	Embedded Systems and IoT Laboratory	PC	-	-	3	1	2
EMPLOYABILITY ENHANCEMENT COURSE								
8.	191LEH612L	Professional Communication	HS	-	-	2	-	1
TOTAL CREDITS								20
11.	191ITA611I	Inplant Training / Internship [#]	EEC	-	-	-	-	1 [#]
12.	191ITA601I	Industry Supported Course (Optional) ^{##}	EEC	1	-	-	-	1 ^{##}
MANDATORY COURSE								
8.	191GEM611L	NSS / NCC / YRC - Phase – III*	MC	-	-	2	-	1*
9.	191GEM601L	Foreign Language / Indian Constitution ^{&}	MC	3	-	-	-	3 ^{&}
ONLINE COURSE[#]								
10.		Online Course (Optional) [§]	PE	-	-	-	-	3 [§]

* Students have to complete the respective phase III.

& Students those who have not earned 3 credits through NSS / NCC / YRC must register for this course and earn 3 credits.

Mandatory to do Internship and earn minimum one credit between 3rd and 6th semester.

Students may earn credits in lieu of Professional Elective -V in 8th semester. Please refer Clause 26.1.1 of B.E. Regulations 2019.

§ Online courses of three credits each can be considered in lieu of Professional Elective – IV and Professional Elective – VI. A student earned only three credits can drop only Professional Elective – VI. Please refer Clause 14.9 of B.E. Regulations 2019.

SEMESTER VII								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.	191ITC701T	Cryptography and Network Security	PC	3	-	-	-	3
2.		Open Elective III	OE	3	-	-	-	3
3.		Professional Elective III	PE	3	-	-	-	3
4.		Professional Elective IV	PE	3	-	-	-	3
5.	191ITA701T	Comprehensive Examination [@]	PC	-	-	-	-	3 [@]
LABORATORY								
6.	191ITC711L	Security Laboratory	PC	-	-	4	-	2
EMPLOYABILITY ENHANCEMENT COURSE								
7.	191ITP711J	Project Work / Start up – Phase - I	EEC	-	-	-	4	2
8.	191ITA11I	Inplant Training / Internship [#]	EEC	-	-	-	-	1
TOTAL CREDITS								17
9.	191ITA701I	Industry Supported Course (optional) ^{##}	EEC	1	-	-	-	1 ^{##}
ONLINE COURSE[#]								
10.		Online Course (optional) ^{\$}	PE	-	-	-	-	3 ^{\$}

[@] Students may earn credits in lieu of Professional elective – III in 7th semester. Please refer clause 26.2 of B.E. Regulations 2019

[#] Mandatory to earn at least one credit by doing internship between 3rd and 6th semester with one credit reflecting in this semester for CGPA calculation.

^{##} Students may earn credits in lieu of Professional Elective - V in 8th semester. Please refer Clause 26.1.1 of B.E. Regulations 2019.

^{\$} Online courses of three credits each can be considered in lieu of Professional Elective – IV and Professional Elective – VI. A student earned only three credits can drop only Professional Elective – VI. Please refer Clause 14.9 of B.E. Regulations 2019.

SEMESTER VIII								
S.No	Course Code	Course Title	Category	L	T	P	R	C
THEORY								
1.		Professional Elective -V	PE	3	-	-	-	3
2.		Professional Elective -VI	PE	3	-	-	-	3
EMPLOYABILITY ENHANCEMENT COURSE								
3.	191ITP811J	Project Work / Start up – Phase - II	EEC	-	-	-	20	10
TOTAL CREDITS								16

PROGRAMME TOTAL CREDITS = 165

HUMANITIES AND SOCIAL SCIENCES (HS)

S.No	Subject Code	Subject	Semester	Credits
1.	191LEH101T	Technical English	I	3
2.	191LEH201T	Professional Communication/BEC Certification	II	3
3.	191GEM311L	Yoga / Social Service (Phase I)	III	1
4.	191GEM511L	Yoga / Social Service (Phase II)	V	1
5.	191MBC521T	Professional Ethics and Principles of Management	VI	3
6.	191LEH612L	Professional Communication	VI	1
TOTAL CREDITS				12

BASIC SCIENCE COURSES (BS)

S.No	Subject Code	Subject	Semester	Credits
1.	191MAB101T	Engineering Mathematics - I	I	4
2.	191PYB101T	Engineering Physics & Laboratory	I	4
3.	191CYB101T	Engineering Chemistry & Laboratory	I	4
4.	191MAB201T	Engineering Mathematics - II	II	4
5.	191PYB202T	Physics for Information Science	II	3
6.	191MAB302T	Discrete Mathematics	III	4
7.	191MAB404T	Probability and Statistics	IV	4
TOTAL CREDITS				27

ENGINEERING SCIENCE COURSES (ES)

S.No	Subject Code	Subject	Semester	Credits
1.	191GES102T	Problem Solving and Python Programming & Laboratory	I	5
2.	191GES101T	Engineering Graphics	I	4
3.	191GES201T	Basic Electrical and Electronics Engineering & Laboratory	II	5
4.	191CSC201T	Programming in C and Laboratory	II	5
5.	191ECS322T	Digital Principles and System Design	III	3
6.	191ECS331L	Digital Systems Laboratory	III	2
7.	191ECS422T	Principles of Communication	III	3
TOTAL CREDITS				27

PROFESSIONAL CORE COURSES (PC)

S.No	Subject Code	Subject	Semester	Credits
1.	191ITC301T	Data Structures and Algorithms & Laboratory	III	5
2.	191ITC302T	Object Oriented Programming & Laboratory	III	5
3.	191ITC303T	Operating Systems	III	3
4.	191ITC401T	Database Management Systems & Laboratory	IV	5
5.	191ITC402T	Software Engineering & Laboratory	IV	5
6.	191ITC403T	Computer Architecture	IV	3
7.	191ITC413L	Open Source Programming	IV	2
8.	191ITC501T	Computer Networks	V	3
9.	191ITC502T	Data warehousing and Data Mining	V	3
10.	191ITC503T	Web Technology & Laboratory	V	5
11.	191ITC512L	Mobile Application Development Laboratory	V	2

12.	191ITC601T	Mobile Computing	VI	3
13.	191ITC602T	Artificial Intelligence	VI	3
14.	191ITC603T	Embedded Systems and IoT Applications & Laboratory	VI	5
15.	191ITC611L	Networks Laboratory	VI	2
16.	191ITC701T	Cryptography and Network Security & Laboratory.	VII	5
TOTAL CREDITS				59

PROFESSIONAL ELECTIVE COURSES (PE)

Sl. No	Code No	Subject	Semester	Credits
Professional Elective -I				
1.	191ITE501T	Big Data Analytics	V	3
2.	191ITE502T	Image Processing	V	3
3.	191ITE503T	Cyber Law	V	3
4.	191ITE504T	Block Chain Technology	V	3
5.	191ITE505T	Principles of Cloud Computing	V	3
6.	191ITE506T	Design and Development of Cloud	V	3
7.	191ITE507T	Software Testing	V	3
8.	191ITE508T	Principles of Compiler Design	V	3
Professional Elective -II				
9.	191ITE601T	NO SQL	VI	3
10.	191ITE602T	Machine Learning	VI	3
11.	191ITE603T	Network Programming, Protocols and Standards.	VI	3
12.	191ITE604T	Ethical Hacking	VI	3
13.	191ITE605T	Cloud Architecture and Application Development	VI	3
14.	191ITE606T	Cloud Data Streaming	VI	3
15.	191ITE607T	Internet of Things	VI	3

16.	191ITE608T	Human Computer Interaction	VI	3
Professional Elective -III				
17.	191ITE701T	Deep Learning	VII	3
18.	191ITE702T	Knowledge Engineering	VII	3
19.	191ITE703T	Mobile and Wireless Security	VII	3
20.	191ITE704T	Security Governance, Risk and compliance	VII	3
21.	191ITE705T	Cloud Big Data Essentials	VII	3
22.	191ITE706T	Cloud Strategy Planning and Management	VII	3
23.	191ITE707T	Robotics	VII	3
24.	191ITE708T	Genetic Algorithms	VII	3
Professional Elective -IV				
25.	191ITE711T	Natural Language Processing	VII	3
26.	191ITE712T	Business Intelligence	VII	3
27.	191ITE713T	Malware Analysis	VII	3
28.	191ITE714T	Secure Coding and Principles	VII	3
29.	191ITE715T	IoT -Architecture Protocols and Security	VII	3
30.	191ITE716T	Cloud Security	VII	3
31.	191ITE717T	3D Printing and Design	VII	3
32.	191ITE718T	Parallel Programming Using Open CL	VII	3
Professional Elective -V				
33.	191ITE801T	Bio Inspired Computing	VIII	3
34.	191ITE802T	Database Security	VIII	3
35.	191ITE803T	Software Defined Networks	VIII	3
36.	191ITE804T	Forensics and Incident Response	VIII	3
37.	191ITE805T	Edge Computing	VIII	3
38.	191ITE806T	Energy Management for IOT devices	VIII	3
39.	191ITE807T	Pervasive Computing	VIII	3

40.	191ITE808T	OS for Smart Devices	VIII	3
Professional Elective -VI				
41.	191ITE811T	Data Visualization Techniques	VIII	3
42.	191ITE812T	Data Science	VIII	3
43.	191ITE813T	Cyber Security	VIII	3
44.	191ITE814T	Data Centric Networks	VIII	3
45.	191ITE815T	Cloud Virtualization	VIII	3
46.	191ITE816T	IoT Security	VIII	3
47.	191ITE817T	Virtual Reality	VIII	3
48.	191ITE818T	Quantum Computing	VIII	3
TOTAL CREDITS				18

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

Sl. No.	Subject Code	Subject	Semester	Credits
1.		In plant Training / Internship	III to VII	3
2.		Industry Supported Course	IV to VI	3
3.	191ITP712L	Project Work / Start up – Phase - I	VII	2
4.	191ITP811L	Project Work / Start up – Phase - II	VIII	10

MANDATORY COURSES (MC)

Sl. No.	Subject Code	Subject	Semester	Credits
1.	191GEM101L	Induction Training	I	1
2.	191CYM201T	Environmental Science	II	3
3.	191GEM211L	NSS / NCC / YRC (Phase I)	II	1
4.	191GEM411L	NSS / NCC / YRC (Phase II)	IV	1
5.	191GEM611L	NSS / NCC / YRC (Phase III)	VI	1
6.	191GEM601T	Foreign Language / Indian Constitution	VI	3

CREDIT DISTRIBUTION

SEMESTER →	I	II	III	IV	V	VI	VII	VIII	CREDIT
Humanities and Social Sciences (HS)	3	3	1		4	1			12
Basic Sciences(BS)	12	7	4	4					27
Engineering Sciences (ES)	9	10	5	3					27
Professional Core (PC)			13	15	13	13	5		59
Professional Electives (PE)					3	3	6	6	18
Open Electives (OE)					3	3	3		9
Employability Enhancement Courses (EEC)							3	10	13
Total Credit	24	20	23	22	23	20	17	16	165

NON CGPA COURSES DETAILS

	I	II	III	IV	V	VI	VII	VIII	Minimum credits to be earned for awarding degree
In plant Training / Internship			√	√	√	√	√		1
Industry Supported Course			√	√	√	√	√		-
Mandatory courses (MC)	√	√		√		√			7
Online Courses (PE)			√	√	√	√	√		-