



Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed-to-be University under section 3 of UGC Act, 1956)
(Vide Notification No. F.9-5/2000 - U.3, Ministry of Human Resource Development, Govt. of India, dated 4th July 2002)

B.Tech Information Technology

(Four Years)

(Choice Based Credit System)

CURRICULUM - 2020



DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF COMPUTING

BHARATH INSTITUTE OF SCIENCE AND TECHNOLOGY

CHENNAI-600 073, TAMIL NADU

Bharath Institute of Science and Technology
School of Computing
DEPARTMENT OF INFORMATION TECHNOLOGY

DEPARTMENT VISION

- To produce competent IT professionals who are technically sound and ethically strong for the industries, community and research organizations at the national and global levels through excellence in teaching, research and consultancy.

DEPARTMENT MISSION

- Develop the students, strong in engineering fundamentals, proficient in technical skills, strong in ethical values and knowledge able in applying the skills for the welfare of the society through competent faculty.
- Provide state of the art facilities in which higher studies and research flourish amongst the students.
- Enhance the collaborative partnership between Industry, R&D organization to promote research among faculty, students and also preparing the student to be an entrepreneur.
- Bring out the aggregate identity and accentuating moral esteems of students.

PROGRAM OUTCOMES (ALIGNED WITH GRADUATE ATTRIBUTES) (PO)

At the end of this program, graduates will be able to

- **PO 1: Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO 2: Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- **PO 3: Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO 4: Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems.

- **PO 5: Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- **PO 6: The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO 7: Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO 8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO 9: Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO 10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO 11: Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO 12: Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Programme Educational Objectives

The program is expected to enable the students to

- **PEO 1:** Exhibit comprehensive knowledge in IT solution development leading to excellence in professional career and/or higher education including research.
- **PEO 2:** Provide solutions making use of the knowledge gained in Artificial Intelligence, Cloud Computing, Data Science, E-commerce Platform, Cyber Security and Communication.
- **PEO 3:** Adapt to continuously changing technologies to develop innovative applications with ethical and social commitment.

PSO 1

- **Programming Design :** Design and develop algorithm for real life problems using latest technologies and solve it by using computer programming languages and database technologies .

PSO 2

- **IT Business Scalable Design :** Analyze and recommend computing infrastructures and operations requirements and Simulate and implement information networks using

configurations, algorithms, suitable protocol and security for valid and optimal connectivity.

PSO 3

- **Intelligent Agents Design :** Design and execute projects for the development of data modeling, data analytics and knowledge representation in various domain.

SUMMARY OF CREDIT DISTRIBUTION

CREDIT DISTRIBUTION		
S. NO	CATEGORY	CREDITS
1.	Basic Sciences (B)	32
2.	Humanities and Social Sciences (H)	12
3.	Engineering Sciences (E)	19
4.	Professional Core (C)	52
5.	Professional Elective (S)	18
6.	Open Elective (O)	12
7.	Project and Internship (P)	15
TOTAL		160

BASIC SCIENCES (B) COURSES

S.NO.	COURSE CODE	COURSE TITLE	L	T	P	C	PRE-REQUISIT	REMARKS
1.	U20PYBJ03	Semiconductor Physics	3	1	2	5	HSC	CSE,IT
2.	U20CYBJ01	Engineering Chemistry	3	1	2	5	HSC	Common to all
3.	U20PYBB01	Foundation of Physics	2	0	0	2	Diploma	
4.	U20CYBB01	Foundation of Chemistry	2	0	0	2	Diploma	
5.	U20MABB01	Foundation of Mathematics	2	0	0	2	Diploma	
6.	U20MABT01	Calculus and linear Algebra	3	1	0	4	HSC	Common to all
7.	U20MABT02	Advanced Calculus and Complex Analysis	3	1	0	4	HSC	Common to all
8.	U20MABT03	Transforms and boundary Value Problems	3	1	0	4	U20MAB T01, & U20MAB T02, Or Diploma	Common to all
9.	U20MABT07	Probability and Queuing Theory	3	1	0	4	U20MAB T03	CSE, IT
10.	U20MABT08	Discrete Mathematics for Engineers	3	1	0	4	U20MAB T07	CSE, IT, ECE, BME
11.	U20BTBT01	Biology for Engineers	2	0	0	2	HSC or Diploma	Common to all

HUMANITIES AND SOCIAL SCIENCES (H)

S.NO	COURSE CODE	COURSE TITLE	L	T	P	C	REMARKS
1	U20LEHJ01	Technical English	2	0	2	3	HSC
2	U20MBHT01	Management principles for Engineers	3	0	0	3	HSC or Diploma
3	U20PDHJ01	Employability skills and Practices	2	0	2	3	HSC or Diploma
4	U20CYHT01	Social and Environmental Engineering	3	0	0	3	HSC or Diploma

ENGINEERING SCIENCES (E)

S.NO	COURSE CODE	COURSE TITLE	L	T	P	C	REMARKS
1	U20MEEJ01	Engineering Graphics and Design	1	0	6	4	HSC
2	U20EEEJ01	Basic Electrical and Electronics Engineering	3	0	2	4	HSC
3	U20MEEJ02	Basic Civil and Mechanical Engineering	3	0	2	4	HSC
4	U20MEET01	Engineering Mechanics	3	0	0	3	HSC or Diploma
5	U20CSEJ01	Programming for problem Solving	3	0	2	4	HSC

PROFESSIONAL CORE (C)

S.No	COURSE CODE	COURSE TITLE	L	T	P	C	PRE-REQUISITE
1	U20CSCJ01	Data Structures and Algorithms	2	0	2	3	U20CSEJ01
2	U20CSCJ02	Python Programming	2	0	2	3	U20CSEJ01
3	U20ITCJ01	Object Oriented Programming using Java	2	0	2	3	U20CSEJ01
4	U20ITCT01	Principles of Information Technology Management	2	0	0	2	U20CSEJ01
5	U20ITCT02	IT Infrastructure	3	0	0	3	U20EEEJ01
6	U20ITCJ02	Database Management System	2	0	2	3	U20CSCJ01
7	U20ITCT04	Internet Technologies	3	0	0	3	U20ITCT01
8	U20CSCJ07	Operating Systems	3	0	0	3	U20CSCJ01
9	U20CSCJ09	Software Engineering and Program Management	2	0	2	3	U20ITCJ01
10	U20ITCJ03	Web Design and Development	2	0	2	3	U20ITCJ01
11	U20CSCT04	Artificial Intelligence	3	0	0	3	U20ITCJ02
12	U20ITCJ04	IoT Programming	2	0	2	3	U20ITCJ01

13	U20CSCT06	Data Science	2	0	2	3	U20ITCJ02
14	U20ITCJ05	Full Stack Development	2	0	2	3	U20ITCJ03
15	U20ITCJ06	Cloud Computing and Virtualization	2	0	2	3	U20ITCJ05
16	U20ITCT05	Augmented Reality	2	0	0	2	U20CSCT04
17	U20ITCJ07	Ethical hacking and Digital Forensics	2	0	2	3	U20ITCT04
18	U20ITCT06	Block Chain and Crypto currencies	3	0	0	3	U20ITCJ07

PROFESSIONAL ELECTIVE (S)

S.No	COURSE CODE	COURSE TITLE	L	T	P	C	PRE-REQUISITE
1	U20ITST01	Natural Language Processing	3	0	0	3	U20CSCT04
2	U20ITST02	Big data Analytics	3	0	0	3	U20CSCT06
3	U20ITST03	Data Visualization	3	0	0	3	U20ITCJ02
4	U20ITST04	Scripting Languages	3	0	0	3	U20ITCJ01
5	U20ITST05	E-commerce	3	0	0	3	U20ITCT02
6	U20ITST06	Advanced Database Technologies	3	0	0	3	U20ITCJ02
7	U20ITST07	Social Media Networking	3	0	0	3	U20ITCJ03
8	U20ITST08	Enterprise Resource Planning	3	0	0	3	U20ITCT02

OPEN ELECTIVE (O)

S.NO	COURSE CODE	COURSE TITLE	L	T	P	C
1	U20ITOT01	Mobile App Development	3	0	0	3
2	U20ITOT02	Digital Advertisements	3	0	0	3
3	U20ITOT03	Data Analytics	3	0	0	3
4	U20ITOT04	Hacking Techniques	3	0	0	3
5	U20ITOT05	Game Programming	3	0	0	3

PROJECT AND INTERNSHIP (P)

S.NO	COURSE CODE	COURSE TITLE	L	T	P	C	PRE-REQUISITE
1	U20ITPI01	Comprehension	0	0	2	1	
2	U20ITPI02	Internship	0	0	2	1	U20CSPI01
3	U20ITPR01	Project Phase – I	0	0	2	1	U20CSPI02
4	U20ITPR02	Project Phase - II	0	0	24	12	U20CSPI01