

SHRI G.S. INSTITUTE OF TECHNOLOGY & SCIENCE, INDORE

DEPARTMENT OF COMPUTER ENGINEERING



Scheme of Examination

&

Syllabi of Courses

(Under the BoS of Computer Engg.)

of

B.E. Computer Science & Engineering

Session : 2019 – 2020

Vision and Mission of Institute

Vision:

A front-line institute in science and technology making significant contributions to Human resource development envisaging dynamic needs of the society.

Mission:

To generate experts in science and technology akin to society for its accelerated Socio-economic growth in professional and challenging environment imparting Human values.

Vision and Mission of Department

Vision:

To become strong centre of excellence for creating competent human resource in the field of Computer Science and Engineering meeting the dynamic societal and industrial needs.

Mission:

M1: To produce technically competent professionals in Computer Science and Engineering having a blend of theoretical knowledge and practical skills.

M2: To encourage innovation, research, and analytical activities with professional ethics and responsibilities through quality education.

M3: To provide learning ambience in collaboration with industries to keep pace with dynamic technological advancements.

M4: To motivate students to apply knowledge to resolve societal and environmental challenges and engage in continuous learning towards sustainable development.

Program Outcomes

PO 1:	Engineering knowledge: Apply knowledge of mathematics and science with fundamentals of Computer Science & Engineering to be able to solve complex engineering problems related to CSE
PO 2:	Problem analysis: Identify Formulate review research literature and analyze complex engineering problems related to CSE and 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 related to CSE 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.
PO 5:	Modern Tool Usage: Create, Select and apply appropriate techniques, resources and modern engineering and it tools including prediction and modeling to computer science related 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 CSE professional engineering practice.
PO 7:	Environment and sustainability: Understand the impact of the CSE 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 multi-disciplinary settings
PO 10:	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large such as able to comprehend and with 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 management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments
PO 12:	Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning the broadest context of technological change

Program Educational Objectives

PEO1: To inculcate self-assurance, integrity, technical, collaborative and communication abilities (Leadership) in students, to be able to inspire and guide the team they work in.

PEO 2: To equip students with theoretical knowledge and practical skills to take on the challenges in the industries or research organizations.

PEO 3: To promote among graduates, the quest for lifelong learning to remain professionally more efficient.

PEO 4: To sensitize students towards professional ethics and practices to take up and resolve socially relevant challenges.

PEO 5: To encourage graduates to gain multi-disciplinary knowledge through industrial training and projects leading to innovation, research and sustainable development.

Program Specific Outcomes

PSO 1: To develop conceptual understanding and application of learned concepts to different domains.

PSO 2: To imbibe professional ethics, communication abilities and quest for continuous learning.

PSO 3: To gain capability to use state of art techniques, skills and tools with mind-set inclined towards innovation and research.

**B.E. I YEAR COMPUTER SCIENCE & ENGINEERING
SCHEME OF EXAMINATION 2019 - 20**

SEMESTER 'A'

S. No.	Subject Category	Subject Code	Subject Name	Hours per Week			Credits		Max. Marks				
				L	T	P	Th.	Pr.	Theory		Practical		Total
									Th.	CW	SW	Pr.	
1.	BSC	MA10001	Mathematics – I	3	1	0	4	0	70	30	0	0	100
2.	BSC	PH10006	Physics	3	1	2	4	1	70	30	20	30	150
3.	ESC	CE10003	Fundamentals of Civil Engineering & Applied Mechanics	3	0	2	3	1	70	30	20	30	150
4.	ESC	ME10149	Engineering Graphics	2	0	4	2	2	70	30	40	60	200
5.	ESC	EE10005	Fundamentals of Electrical Engineering	3	0	2	3	1	70	30	20	30	150
6.	MC	CH10200	Environmental Science	0	1	2	-	-	0	0	100	0	100
Total				14	3	12	16	5	350	150	200	150	850

SEMESTER 'B'

S. No.	Subject Category	Subject Code	Subject Name	Hours per Week			Credits		Max. Marks				
				L	T	P	Th.	Pr.	Theory		Practical		Total
									Th.	CW	SW	Pr.	
1.	BSC	MA10501	Mathematics- II	3	1	0	4	0	70	30	0	0	100
2.	BSC	CH10506	Chemistry	3	1	2	4	1	70	30	20	30	150
3.	HSMC	HU10651	Technical English	3	0	2	3	1	70	30	20	30	150
4.	ESC	CO10648	Programming for Problem Solving	3	0	2	3	1	70	30	20	30	150
5.	ESC	ME10649	Fundamentals of Mechanical Engineering	3	0	2	3	1	70	30	20	30	150
6.	ESC	IP10650	Manufacturing Practices & Workshop	0	1	4	1	2	0	0	40	60	100
7.	MC	HU10700*	Universal Human Values Groups	2 Hrs. per week working Saturday				0	0	100	0	100	
Total				15	3	12	18	6	350	150	220	180	900

- Mandatory Noncredit course PASS/FAIL status will appear in marksheet.

**B.E. II YEAR COMPUTER SCIENCE & ENGINEERING
SCHEME OF EXAMINATION 2019 - 20**

SEMESTER 'A'

S. No.	Category	Subject Code	Subject Nomenclature	Hours per Week			No. of Credits			Maximum Marks				
				L	T	P	Th	Pr.	Total	Th.	CW	Pr.	SW	Total
1.	BSC	MA24003	Mathematics -III	3	1	-	4	-	4	70	30	-	-	100
2.	PCC	CO_____	Object Oriented Programming Systems	3	1	2	4	1	5	70	30	60	40	200
3.	PCC	CO24009	Computer Architecture	3	-	2	3	1	4	70	30	60	40	200
4.	ESC	EC 24010	Analog & Digital Electronics	3	-	2	3	1	4	70	30	60	40	200
5.	HSMC	HU24005	Economics for Engineers	3	-	-	3	-	3	70	30	-	-	100
6.	LC	CO 24497	Programming Practices	-	1	2	1	1	2	-	-	60	40	100
7.	ESC/ LC	EC 24498	Electronics Workshop	-	-	2	-	1	1	-	-	60	40	100
Total				15	3	10	18	5	23	350	150	300	200	1000

SEMESTER 'B'

S. No.	Category	Subject Code	Subject Nomenclature	Hours per Week			No. of Credits			Maximum Marks				
				L	T	P	Th.	Pr.	Total	Th.	CW	Pr.	SW	Total
1.	PCC	CO 24553	Discrete Structures	3	-	-	3	-	3	70	30	-	-	100
2.	BSC	MA 24554	Mathematics - IV	3	1	-	4	-	4	70	30	-	-	100
3.	PCC	CO _____	Data Structures	3	1	2	4	1	5	70	30	60	40	200
4.	PCC	CO 24558	Software Engineering	3	-	2	3	1	4	70	30	60	40	200
5.	ESC	EC 24559	Analog and Digital Communication	3	-	2	3	1	4	70	30	60	40	200
6.	LC	CO 24992	Computer Workshop	-	-	2	-	1	1	-	-	60	40	100
7.	HSBC	HU 24505	Values, Humanities and Professional Ethics	-	2	-	2	-	2	-	-	-	100	100
Total				15	4	8	19	4	23	350	150	240	260	1000

Internship of minimum 2 weeks to be carried out after sem. "A" or Sem. "B" but before commencement of III Year Sem. "A". Evaluation shall be done in III Year Sem. "A".

**B.E. III YEAR COMPUTER SCIENCE & ENGINEERING
SCHEME OF EXAMINATION 2019 - 20**

SEMESTER 'A'

S. No.	Subject Code	Subject	Hours per Week			No. of Credits			Maximum Marks				
			L	T	P	Th.	Pr.	Total	Th.	CW	Pr	SW	Total
1.	CO 34002	Theory of Computation	3	1	-	4	-	4	70	30	-	-	100
2.	CO 34005	Data Base Management Systems	3	1	2	4	1	5	70	30	60	40	200
3.	CO 34007	Computer Networks	3	1	2	4	1	5	70	30	60	40	200
4.	CO 34008	Object Oriented Software Engineering	3	-	2	3	1	4	70	30	60	40	200
5.	EC 34013	Introduction to Microprocessors	3	-	2	3	1	4	70	30	60	40	200
		Total	15	3	8	18	4	22	350	150	240	160	900
Optional Subject													
6.	OC-III	Open Category Subject-III	-	-	-	-	-	3	-	-	-	-	-

SEMESTER 'B'

S. No.	Subject Code	Subject	Hours per Week			No. of Credits			Maximum Marks				
			L	T	P	Th.	Pr.	Total	Th.	CW	Pr.	SW	Total
1.	CO 34552	Operating Systems	3	1	2	4	1	5	70	30	60	40	200
2.	CO 34560	Systems Programming	3	-	2	3	1	4	70	30	60	40	200
3.	IP 34561	Industrial Engg. & Management	3	1	-	4	-	4	70	30	-	-	100
4.	CO 34563	Design & Analysis of Algorithms	3	-	2	3	1	4	70	30	60	40	200
5.	CO 34565	Internet & Web Technology	3	-	2	3	1	4	70	30	60	40	200
6.	CO 34990	Project Planning & Seminar	-	-	2	-	1	1	-	-	-	40	40
		Total	15	2	10	17	5	22	350	150	240	200	940
Optional Subject													
7.	OC-IV	Open Category Subject-IV	-	-	-	-	-	3	-	-	-	-	-

B.E. IV YEAR (4YDC) COMPUTER ENGINEERING**SCHEME OF EXAMINATION 2019 - 20****SEMESTER 'A'**

S. No.	Subject Code	Subject	Hours per Week			No. of Credits			Maximum Marks				
			L	T	P	Th.	Pr.	Total	Th.	CW	S W	Pr.	Total
1.	CO 44001	Artificial Intelligence	3	-	-	3	-	3	70	30	-	-	100
2.	CO44003	Computer Interfacing and IoT	3	-	2	3	1	4	70	30	40	60	200
3.	CO44051	Computer Graphics	3	-	2	3	1	4	70	30	40	60	200
4.		Elective – I	3	-	-	3	-	3	70	30	-	-	100
5.		Elective – II	3	-	2	3	1	4	70	30	40	60	200
6.	CO 44401	System Operations Lab	-	-	2	-	1	1	-	-	40	60	100
7.	CO 44499/ CO 44999	Project Phase-I/ Project Phase-II	-	-	8	-	4	4	-	-	40	60	100
		Total	15	-	16	15	8	23	350	150	200	300	1000
Optional Subject													
8.	OC-V	Open Category–V (Audit Only)	-	-	-	-	-	-	-	-	-	-	-

SEMESTER 'B'

S. No.	Subject Code	Subject	Hours per Week			No. of Credits			Maximum Marks				
			L	T	P	Th.	Pr.	Total	Th.	CW	SW	Pr.	Total
1.		Elective – III	3	-	2	3	1	4	70	30	40	60	200
2.		Elective – IV	3	-	2	3	1	4	70	30	40	60	200
3.	CO_____	Industrial Training / Internship (Evaluation) and Seminar	-	-	-	-	8	8	-	-	100	-	100
4.	CO 44999/ CO 44499	Project Phase - II / Project Phase – I	-	-	8	-	4	4	-	-	40	60	100
		Total	6	-	12	6	14	20	140	60	220	180	600

List of Electives**Semester 'A'****Elective-I**

- 1 CO 44____ Soft Computing
- 2 CO 44____ High Performance Computing
- 3 CO 44____ Multimedia Systems
- 4 EI 44____ VLSI Technology
- 5 CO 44253 Distributed Computing
- 6 CO 44____ Digital Image Processing

Elective-II

- 1 CO 44301 Data Science
- 2 CO 44____ Graph Algorithms
- 3 MA 44____ Simulation and Modeling
- 4 IM 44____ Operations Research
- 5 CO 44____ Advanced Computer Networks
- 6 CO 44____ Computer Performance and Evaluation

Semester 'B'**Elective-III**

- 1 CO 44____ Machine Learning
- 2 CO 44____ Cloud Computing
- 3 CO 44____ Advanced Data Structures
- 4 CO 44____ Software Project Management
- 5 CO 44____ Human-Computer Interaction
- 6 CO 44____ Embedded Systems

Elective-IV

- 1 CO 44____ Robotics and Vision Intelligence
- 2 CO 44____ Compiler Construction
- 3 CO 44____ Advanced Operating Systems
- 4 CO 44____ Computational Geometry
- 5 CO 44____ Information and Network Security
- 6 CO 44____ Advanced Databases