

Handbook for CO, PO & PSO
B.Tech
Computer Science & Engineering



GITA AUTONOMOUS COLLEGE

Affiliated to BPUT, Odisha

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

Affiliated to BPUT, Odisha

Vision

To foster prosperity through technological advancement by promoting education, innovation, and collaborative research, and to emerge as a globally renowned premier technical institution.

Mission

1. To impart high quality professional education to students worldwide, fostering innovation, technological advancement, discipline, effective communication skills, and strong moral values.
2. To provide a broad-based education that ensures the holistic development of students.
3. To leverage expertise in science, technology, and management to deliver comprehensive training in visualizing, synthesizing, and executing projects.
4. To nurture a spirit of entrepreneurship and innovation among students.
5. To undertake sponsored research and offer consultancy services in industrial, educational, and other relevant domains.
6. To promote healthy practices such as community service, outreach initiatives, and innovative projects for societal benefit.

COMPUTER SCIENCE & ENGINEERING DEPARTMENT

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

Affiliated to BPUT, Odisha

Vision

To be a recognized leader by imparting quality technical education, training and research and there by facilitating the extensive research environment, equipping students with latest skills in the field of technology supplemented with practical orientation to face challenges in the fast morphing modern computing industry and academia for the betterment of the society

Mission

Mission No.	Mission Statements
M1	To produce best quality computer science and IT professionals and researchers by providing state-of-the-art training, hands on experience and healthy research environment.
M2	To collaborate with industry and academia around the globe for achieving quality technical education and excellence in research through active participation of all the stakeholders.
M3	To promote academic growth by establishing Centre of Excellences and offering inter-disciplinary postgraduate and doctoral programs.
M4	To establish and maintain an effective operational environment and deliver quality, prompt cost effective and reliable technology services to the society as well as compliment the local and global economic goals.

Program Educational Objectives (PEOs)

PEO No.	Program Educational Objectives Statements
PEO1	The graduates will utilize their expertise in engineering to solve industrial and technological problems.
PEO2	Graduates will be innovators and professionals in technology deployment and system implementation.
PEO3	Graduates will function in their profession with social awareness and responsibilities.
PEO4	Graduates will interact with their peers in industry and society as engineering professionals and leaders.
PEO5	Graduates will succeed in achieving innovative skills in the field of research and computer application.

Program Specific Outcomes (PSOs)

PSO 1: The graduates will have the ability to design, develop and innovate software product or process in a systematic way by applying algorithm design, artificial intelligence, soft computing and programming skills.

PSO 2: The graduate will have the ability to take up higher studies, collaborative research and entrepreneurship in the modern computing environment.

PSO3: Graduate will have the ability to achieve additional expertise through add-on programs in machine learning, deep learning, IoT etc and lifelong learning.

List of Program Outcomes(POs)

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and Computer Science & Engineering to the solution of complex engineering problems.

PO2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. 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.

PO4. 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.

PO5. 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.

PO6. 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.

PO7. 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.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. 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.

PO11. 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.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Mathematics-I

Course Code: 22BTTBS101

Semester: 1st

Course Outcomes:

CO1	Identify, formulate and solve Engineering problems
CO2	Apply the knowledge of Mathematics in Physical sciences and Engineering
CO3	Acquire knowledge about Advance Calculus
CO4	Acquire knowledge about Series solution of Differential equations
CO5	Acquire knowledge about Gamma and Beta function, Laplace transform and apply it to solve IVP

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	1	1	1	2	1	3	2	2	2
CO2	3	3	3	2	2	1	1	0	1	2	1	3	2	2	2
CO3	3	2	2	2	2	2	2	0	2	2	1	3	2	2	2
CO4	3	2	3	3	2	2	2	0	2	2	1	3	2	2	2
CO5	3	3	3	3	3	1	1	1	1	2	1	3	2	2	1
AVG	3	2.6	2.8	2.6	2.2	1.4	1.4	0.4	1.4	2	1	3	2	2	1.8

Average CO attainment: 2.4

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Engineering Mathematics-I	2.4	2.08	2.24	2.08	1.76	1.12	1.12	0.32	1.12	1.6	0.8	2.4	1.6	1.6



B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Code: 22BTTBS102

Course Outcomes:

Mapping COs with POs and PSOs.

Average CO attainment: 2.4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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Engineering Physics	2.4	2.4	1.92	2.08	1.76	1.12	2.08	0.32	1.6	1.12	0.32	1.92	0.8	1.12	0.8
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Basic Electrical Engineering

Course Code: 22BTES101

Semester: 1st

Course Outcomes:

CO1	Understand and apply the fundamental laws and principles of electrical circuits, including Kirchhoff's laws, and analyze resistive networks using techniques like node voltage, mesh current analysis, and circuit theorems.
CO2	Analyze single-phase AC circuits with various combinations of resistive, inductive, and capacitive elements using phasor representation, and evaluate real, reactive, and apparent power along with power factor.
CO3	Gain foundational knowledge of three-phase balanced circuits, including star and delta connections, power measurement techniques, and the basics of electrical power generation, transmission, distribution, and safety practices
CO4	Understand the concepts of magnetic circuits, including MMF, flux, reluctance, and BH characteristics, and analyze ideal and practical transformers through equivalent circuits and performance tests.
CO5	Comprehend the construction, working principles, and applications of DC machines, synchronous generators, and induction motors, and interpret their characteristics, including torque-slip curves and back emf.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	1	1	2	1	1	3	2	2	1
CO2	3	3	3	2	2	1	1	1	1	1	0	2	2	2	1
CO3	3	3	2	2	2	2	2	1	2	2	0	2	2	1	1
CO4	3	2	2	3	3	2	2	1	1	2	0	2	2	1	1
CO5	3	3	2	3	3	1	1	1	1	1	0	2	2	1	1
AVG	3	2.8	2.4	2.6	2.4	1.4	1.4	1	1.4	1.4	0.2	2.2	2	1.4	1

Average CO attainment: 2.4

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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Basic Electrical Engineering	2.4	2.24	1.92	2.08	1.92	1.2	1.12	0.8	1.12	1.12	0.16	1.76	1.6	1.12	0.8
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Functional English

Course Code: 22BTTHS101

Semester: 1st

Course Outcomes:

CO1	Use English Language effectively in spoken and written forms.
CO2	Comprehend the given texts and respond appropriately
CO3	Communicate confidently in various contexts and different cultural scenarios
CO4	Famil Acquire proficiency in English including reading and listening comprehension, writing and speaking skills.
CO5	Understand the nuances of spoken English and to be effective speakers

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	1	1	3	3	1	2	1	2	1
CO2	2	2	2	2	2	0	0	0	3	3	0	2	1	2	1
CO3	2	2	3	2	2	1	1	1	3	3	0	2	1	2	1
CO4	2	2	2	2	2	2	1	1	3	3	1	2	1	2	1
CO5	2	2	2	2	2	2	1	1	3	3	0	2	1	2	1
AVG	2	2	2.2	2	2	1.2	0.8	0.8	3	3	0.4	2	1	2	1

Average CO attainment: 2.4

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Communicative English	1.6	1.6	1.76	1.6	1.6	0.96	0.64	0.64	2.4	2.4	0.32	1.6	0.8	1.6	0.8

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Programming for Problem Solving using C

Course Code: 22BTES104

Semester: 1st

Course Outcomes:

CO1	Design simple algorithms for arithmetic and logical problems
CO2	Implement the algorithms to programs (in C language).
CO3	Carryout experiments and correct syntax and logical errors
CO4	Implement conditional branching, iteration and recursion.
CO5	Analyze a problem , decompose into functions and synthesize a complete program using divide and Conquer approach. Apply arrays, pointers and structures to formulate algorithms and programs. Apply programming to solve simple numerical method problems, differentiation of function and simple integration

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	1	1	1	2	2	3	3	3	2
CO2	3	3	3	3	2	2	2	1	2	2	2	3	3	2	2
CO3	3	3	3	2	2	2	1	1	1	2	2	3	3	2	2
CO4	3	3	3	3	3	2	1	1	2	2	2	3	3	3	2
CO5	3	3	3	3	3	2	2	1	1	2	2	3	3	2	2
AVG	3	3	2.8	2.6	2.4	2	1.4	1	1.4	2	2	3	3	2.4	2

Average CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Programming for Problem Solving using C	2.60	2.60	2.43	2.25	2.08	1.73	1.21	0.87	1.21	1.73	1.73	2.60	2.60	2.08	1.73



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: ENGINEERING PHYSICS LAB

Course Code: 22BTPBS101

Semester: 1st

Course Outcomes:

CO1	Know the accuracy and precision in measurement..
CO2	know how to calculate Young's modulus, rigidity modulus of a wire and to understand the concept of vibration mechanism
CO3	Determine the surface tension of liquid and to understand fluid properties
CO4	To experiment with wave nature of light in diffraction through a grating.
CO5	To know the variation of I ~V of PN junction and BJT and To determine the wavelength of light using Newton's ring.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	2	1	1	1	2	1	2	3	1	1	1
CO2	3	3	2	3	3	1	2	1	2	2	2	3	1	1	1
CO3	3	3	2	3	3	1	1	1	2	1	2	3	1	2	1
CO4	3	3	3	3	2	1	2	1	2	2	2	3	1	2	1
CO5	3	3	2	3	2	1	1	1	2	1	2	3	1	2	1
AVG	3	3	2.2	3	2.4	1	1.4	1	2	1.4	2	3	1	1.6	1

Average CO attainment: 2.3

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
ENGINEERING PHYSICS LAB	2.3	2.3	1.6867	2.3	1.84	0.7667	1.0733	0.7667	1.5333	1.0733	1.5333	2.3	0.7667	1.2267



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Basic Electrical Engineering Lab

Course Code: 22BTPES101

Semester: 1st

Course Outcomes:

CO1	Implement principles of DC network, theorems and fundamental concepts of Ohm's law.
CO2	Analyze the concept of single phase AC circuit, measurement of power and power factor
CO3	Analyze and implement the concept of three phase power and its measurement
CO4	Express significance of magnetic circuits, applications, importance of magnetic losses in electrical machines, and applications of power transformers and auto transformers, and DC machines.
CO5	Apply basic safety rules and electrical tariff.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	2	1	1	1	2	2	1	1	2	1	1
CO2	3	3	3	3	2	1	2	1	2	2	1	1	2	1	1
CO3	3	3	2	3	3	1	1	1	2	2	1	1	2	1	1
CO4	3	3	2	3	2	1	2	1	2	2	1	1	2	1	1
CO5	3	2	3	2	3	1	1	1	2	2	1	2	2	1	1
AVG	3	2.8	2.4	2.8	2.4	1	1.4	1	2	2	1	1.2	2	1	1

Average CO attainment: 2.5

PO and PSO Attainment:

	PO 1	PO2	PO 3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Basic Electrical Engineering Lab	2.5	2.333 3	2	2.333 3	2	0.833 3	1.166 7	0.833 3	1.833 3	1.666 7	1.666 7	1	1.666 7	0.833 3	0.833 3



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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: WORKSHOP PRACTICE LAB

Course Code: 22BTPES106

Semester: 1st

Course Outcomes:

CO1	To be able to use various fitting tools and able to perform fitting operation.
CO2	To be able to understand principle of gas welding and able to perform gas welding operation.
CO3	To be able to understand principle of arc welding and able to perform arc welding operation.
CO4	To be able to understand different parts of a lathe and able to perform turning, facing, threading, tapering using lathe.
CO5	To be able to understand different parts of a shaping and milling machine and able to perform shaping and milling operation.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	2	1	2	2	2	1	0	1	1
CO2	3	3	3	2	2	2	2	1	2	2	2	1	0	1	1
CO3	3	3	3	3	3	2	2	1	2	2	2	1	0	2	1
CO4	3	3	3	2	2	2	2	1	3	3	2	1	0	2	1
CO5	3	2	3	3	3	3	2	1	2	2	2	2	0	2	1
AVG	3	2.6	3	2.4	2.4	2.2	2	1	2.2	2.2	2	1.2	0	1.6	1

Average CO attainment: 2.5

PO and PSO Attainment:

	PO 1	PO2	PO 3	PO 4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PSO 1	PSO2	PSO3
WORKSH OP PRACTICE LAB	2.5	2.333 3	2.5	2	2	1.833 3	1.666 7	0.833 3	1.833 3	1.833 3	1.666 7	1	0	1.333 3	0.833 3



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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Programming for Problem Solving using C Lab

Course Code: 22BTPES103

Semester: 1st

Course Outcomes:

CO1	Develop, compile, debug, and execute basic C programs using operators and formatted input/output.
CO2	Implement decision-making constructs like if-else, switch-case, and looping structures for control flow.
CO3	Apply arrays, strings, and functions for data processing and modular programming.
CO4	Utilize structures, dynamic memory allocation, and linked lists for efficient data management.
CO5	Perform file handling operations and implement advanced concepts like command-line arguments and pre-processor directives.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	2	1	2	2	2	2	3	2	2
CO2	3	3	3	3	2	2	2	1	2	3	2	1	3	3	3
CO3	3	3	3	3	3	2	2	1	2	2	1	1	3	3	3
CO4	3	3	3	3	2	2	2	1	2	2	1	1	3	3	2
CO5	3	3	3	3	2	3	2	1	2	2	1	1	3	3	3
AVG	3	2.8	3	2.8	2.4	2.2	2	1	2	2.2	1.4	1.2	3	2.8	2.6

Average CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Programming for Problem Solving using C Lab	2.60	2.43	2.60	2.43	2.08	1.91	1.73	0.87	1.73	2.08	1.21	1.04	2.60	2.43	2.25



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Business Communication and life skill Lab

Course Code: 22BTPHS101

Semester: 1st

Course Outcomes:

CO1	Understanding the sounds of English and using them in the right context. Write paragraphs, stories etc. using short and crisp sentences.
CO2	Listen, speak, read & write the sounds of English using correct stress, tone and rhythm.
CO3	Language Skills- Grammar Exercises, Jumbled Sentences & correcting errors.
CO4	Writing- Paragraph & Precis Writing. Role-Play- enacting ideas, themes(short duration & one-on-one activity)
CO5	Critical Appreciation - Article Analysis, Introducing Self & Others- Learning the nuances of Introduction, Asking questions and Overcoming stage fright.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	2	1	2	3	3	1	3	0	1	1
CO2	2	2	2	2	2	2	1	2	3	3	1	3	0	1	1
CO3	2	2	2	3	3	2	1	2	3	3	1	3	0	1	1
CO4	2	2	3	2	2	2	1	2	3	3	1	3	0	1	1
CO5	2	2	2	2	3	3	2	2	3	3	1	3	0	2	1
AVG	2	2	2.2	2.2	2.4	2.2	1.2	2	3	3	1	3	0	1.2	1

Average CO attainment: 2.6

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
English Language Lab	1.73	1.73	1.91	1.91	1.73	1.91	1.04	1.73	2.60	2.60	0.87	2.60	0.00	1.04	0.87



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

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B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Mathematics-II

Course Code: 22BTTBS204

Semester: 2nd

Course Outcomes:

CO1	Identify, formulate and solve Engineering problems. Apply the knowledge of Mathematics in Physical sciences and Engineering. Acquire knowledge about Series solution of Differential equations.
CO2	Acquire knowledge about Fourier series.
CO3	Acquire knowledge about Series solution of Differential equations.
CO4	Acquire knowledge about complex variables and complex functions, analytic function, conjugate harmonic function and differentiability of complex functions.
CO5	Acquire knowledge about complex integration using different techniques and acquire knowledge about power series.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	1	1	0	1	1	1	3	2	3	2
CO2	3	3	3	2	3	2	2	0	2	2	1	3	2	3	2
CO3	3	3	3	3	3	1	1	1	1	1	0	3	2	3	1
CO4	3	3	3	3	2	2	2	1	2	2	0	3	2	3	2
CO5	3	3	3	3	2	1	1	0	1	1	0	3	2	3	2
AVG	3	3	3	2.6	2.4	1.4	1.4	0.4	1.4	1.4	0.4	3	2	3	1.8

Average CO attainment: 2.22

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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Engineering Mathematics-II	2.22	2.22	2.22	1.92	1.78	1.04	1.04	0.30	1.04	1.04	0.30	2.22	1.48	2.22	1.33
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Chemistry

Course Code: 22BTTBS203

Semester: 2nd

Course Outcomes:

CO1	Classify various fuels based on combustion parameters and understand the working principle of various batteries
CO2	Apply the concept of molecular spectroscopy to analyze organic compounds using spectrophotometer
CO3	Utilize the knowledge of electrochemistry and corrosion science in preventing engineering equipments from corrosion.
CO4	To understand the microstructure of a given alloy systems and eutectic systems under a given set of conditions
CO5	Discuss the benefits and applications of nano materials. Compare and contrast the chemical behavior and physical properties of common substances

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	2	0	1	1	0	2	2	2	1
CO2	3	3	3	3	3	2	2	0	1	1	0	2	2	3	1
CO3	3	3	2	3	3	2	3	2	1	1	0	3	2	3	1
CO4	3	3	3	3	3	2	3	0	2	2	0	2	2	3	1
CO5	3	3	3	3	3	3	3	2	2	2	2	3	2	3	1
AVG	3	3	2.6	2.8	3	2.2	2.6	0.8	1.4	1.4	0.4	2.4	2	2.8	1

Average CO attainment: 2.23

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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Engineering Chemistry	2.23	2.23	1.93	2.08	2.23	1.64	1.93	0.59	1.04	1.04	0.30	1.78	1.49	2.08	0.74
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(Affiliated to BPUT, Odisha)

Course Title: Basic Electronics Engineering

Semester: 2nd

CO1	Familiarize with different semiconductor device with their applications
CO2	Familiarize with different types of transistors with their configurations
CO3	Idea about the different feedback circuits
CO4	Familiarize with JFET, MOSFET, MOS with their application
CO5	Knowledge about number systems, basic gates and logical expression. To be aware with basic communication system including modulations

Familiarize with different semiconductor device with their applications

CO2

Familiarize with different types of transistors with their configurations

CO3

Idea about the different feedback circuits

CO4

Familiarize with JFET, MOSFET, MOS with their application

C05

Knowledge about number systems, basic gates and logical expression. To be aware with basic communication system including modulations

Mapping COs with POs and PSOs.

Average CO attainment: 2.35

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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PO2

PO3

PO4

P05

P0607

08	
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09	1
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10	
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011012S01

PSO2

PSO3

Basic Electronics Engineering	2.35	2.35	2.19	1.88	2.35	1.57	1.72	0.78	0.94	0.94	0.31	1.72	2.35	2.19	2.19
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Mechanics

Course Code: 22BTES206

Semester: 2nd

Course Outcomes:

CO1	Understand and apply the principles of statics, friction, trusses, center of gravity, and moment of inertia.
CO2	Analyze and solve problems related to dynamics, work-energy principles, and different types of motion.
CO3	Understand the fundamentals and applications of thermodynamics in engines, refrigeration, and power plants.
CO4	Study and analyze mechanical components like gears, clutches, screws, and braking systems.
CO5	Gain knowledge of manufacturing processes such as foundry, molding, casting, and sheet metalworking.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	2	1	1	1	2	0	3	3	3	2
CO2	3	2	3	3	2	2	2	1	1	2	0	3	3	3	2
CO3	3	3	3	2	2	3	3	2	1	2	1	3	3	2	2
CO4	3	3	3	3	3	2	2	1	1	2	1	3	3	3	2
CO5	3	3	3	3	3	2	2	1	1	2	0	3	3	3	2
AVG	3	2.6	2.8	2.6	2.4	2.2	2	1.2	1	2	0.4	3	3	2.8	2

Average CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Engineering Mechanics	2.40	2.08	2.24	2.08	1.92	1.76	1.60	0.96	1.12	1.60	0.32	2.40	2.40	2.24	1.60



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: BUSINESS COMMUNICATION AND LIFE SKILLS

Course Code: 22BTTHS202

Semester: 2nd

Course Outcomes:

CO1	Understand and learn different formats of business correspondence at the workplace through which communication takes place
CO2	Understand the importance of writing an effective Resume and Cover letter in the professional world.
CO3	Learn the concept and the use of oral presentation to improve professional presentation and the importance of Personal Interview
CO4	Learn the concept and procedure of Group Discussion. Build qualities like Teamwork and leadership.
CO5	Learning effective time management skills and assertiveness. Learn the nuances of effective listening and conversation and use them in their professional life.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	2	0	0	2	3	2	2	0	0	2
CO2	2	2	2	2	2	3	2	2	0	3	2	2	0	0	2
CO3	2	2	3	3	3	3	1	1	2	3	2	2	0	0	2
CO4	2	2	2	2	2	2	2	2	3	3	2	2	0	0	2
CO5	2	2	2	3	3	3	2	2	3	2	2	2	0	0	2

AVG	2	2	2.2	2.4	2.4	2.6	1.4	1.4	2	2.8	2	2	0	0	2
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Average CO attainment: 2.30

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
BUSINESS COMMUNICATION AND LIFE SKILLS	1.53	1.53	1.69	1.84	1.84	1.99	1.07	1.07	1.53	2.15	1.53	1.53	0.00	2.30	1.53



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Python Programming

Course Code: 22BTCSETPC405

Semester:4th

Course Outcomes:

CO1	To get familiar with python environment
CO2	To implement control structures and user-defined functions in Python
CO3	To understand the use of tuples, lists, or maps
CO4	To implement file and exception handling in Python programs
CO5	To implement basic OOP concepts in Python

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	0	0	3	3	3	3	2	0	2	1	3	3	2	3
CO2	2	3	3	2	3	3	3	0	3	2	1	2	3	2	1
CO3	2	3	3	2	3	3	1	0	2	2	2	2	3	3	2
CO4	2	3	3	3	2	2	0	0	2	3	1	3	3	3	3
CO5	3	3	3	2	2	0	0	0	3	2	2	1	3	2	2
AVG	2.4	2.4	2.4	2.4	2.6	2.2	1.4	0.4	2	2.2	1.4	2.2	3	2.4	2.2

Avg CO attainment: 2.34

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Python programming	1.872	1.872	1.872	1.872	1.95	1.638	1.092	0.312	1.56	1.716	1.092	1.716	2.34	1.872	1.716



B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Outcomes:

Mapping COs with POs and PSOs.

Average CO attainment: 2.30

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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ENGINEERING CHEMISTRY LAB	2.30	2.15	1.69	2.15	1.69	0.92	2.15	0.77	1.53	1.07	1.07	1.53	0.00	1.53	0.77
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Basic Electronics Engineering Lab

Course Code: 22BTPES202

Semester: 2nd

Course Outcomes:

CO1	Familiarize with various electronic components, measuring instruments
CO2	Acquire knowledge of characteristics of diodes and design, testing
CO3	Acquire knowledge of characteristics of transistors and design testing & implementation of transistors in various applications
CO4	Develop an understanding of digital logic gates and design & test digital circuits for various applications using logic gates.
CO5	Gain understanding of operational amplifiers (Op-Amp) and design & testing of electronic circuits for various applications using Op-Amp, implementation of Diode in various applications RECTIFIER & CLIPPER

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	2	1	2	2	2	3	2	2	2
CO2	3	3	2	3	3	2	1	1	2	2	1	3	2	2	2
CO3	3	3	3	2	3	2	2	1	2	2	2	3	2	2	2
CO4	3	3	3	3	3	2	1	1	2	2	1	3	2	2	2
CO5	3	3	3	3	3	2	1	1	2	2	1	3	2	2	1
AVG	3	2.8	2.8	2.6	3	2	1.4	1	2	2	1.4	3	2	2	1.8

Average CO attainment: 2.42

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Basic Electronics Engineering Lab	2.42	2.26	2.26	2.10	2.42	1.61	1.13	0.81	1.61	1.61	1.13	2.42	1.61	1.61	1.45



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Graphics & Design Lab

Course Code: 22BTPE203

Semester: 2nd

Course Outcomes:

CO1	Prepare and understand drawings
CO2	Use the principles of orthographic projections
CO3	By studying projections of solids students will be able to visualize three-dimensional objects and that will enable them to design new products
CO4	Design and fabricate surfaces of different shapes.
CO5	Represent the objects in three-dimensional appearances

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	2	1	2	2	2	3	3	2	2
CO2	3	2	3	2	3	2	2	1	2	2	2	3	3	2	2
CO3	3	3	3	3	3	2	2	1	2	2	1	3	3	3	2
CO4	3	3	3	3	3	2	2	0	2	2	1	3	3	3	2
CO5	3	3	3	3	3	3	2	1	3	2	1	3	3	3	2
AVG	3	2.6	3	2.6	3	2.2	2	0.8	2.2	2	1.4	3	3	2.6	2

Average CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Engineering Graphics & Design Lab	2.60	2.25	2.60	2.25	2.60	1.91	1.73	0.69	1.91	1.73	1.21	2.60	2.60	2.25	1.73



B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Outcomes:

CO1	Understand the basic concept of programming.
CO2	Apply programming concept to solve problem.
CO3	Develop logic for problem solving.
CO4	Remember the python programming approach for problem solving.
CO5	Design various model to handle and process data.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	3	1	3	3	2	1	3	2	3
CO2	3	3	2	3	3	3	3	1	3	3	2	3	3	2	2
CO3	3	3	3	2	3	1	1	1	1	2	2	2	3	2	2
CO4	3	3	3	2	3	0	0	1	0	2	2	2	3	2	1
CO5	3	3	3	3	3	0	0	1	0	1	2	3	3	2	1
AVG	3	3	2.6	2.6	3	1.4	1.4	1	1.4	2.2	2	2.2	3	2	1.8

PO and PSO Attainment:

	PO 1	PO 2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO 3
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Cour se Title	2.5 4	2.5 4	2.201 3	2.116 7	2.5 4	1.185 3	1.185 3	0.846 7	1.185 3	1.862 7	1.693 3	1.862 7	2.54	1.693 3	1.52 4
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Mathematics-III

Course Code: 22BTTBS305

Semester: 3rd

Course Outcomes:

CO1	Understand and apply numerical methods for solving nonlinear equations, linear systems, and interpolation problems.
CO2	Utilize numerical techniques for differentiation, integration, and solving ordinary differential equations.
CO3	Develop a fundamental understanding of probability, random variables, and probability distributions.
CO4	Analyse various probability distributions and their applications in real-world scenarios
CO5	Apply statistical methods for correlation, regression, hypothesis testing, and estimation techniques.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	2	1	0	2	1	1	3	3	2	1
CO2	3	3	3	2	2	2	1	1	2	2	1	3	3	2	1
CO3	2	3	3	3	2	1	1	0	1	2	1	3	3	3	2
CO4	2	3	3	3	2	2	1	1	2	2	1	3	2	3	2
CO5	2	3	3	3	3	0	3	0	0	3	3	3	2	2	3
AVG	2.4	3	3	2.6	2.2	1.4	1.4	0.4	1.4	2	1.4	3	2.6	2.4	1.8

Avg CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Engineering Mathematics-I	1.92	2.4	2.4	2.08	1.76	1.12	1.12	0.32	1.12	1.6	1.12	2.4	2.08	1.92	1.44



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Object-Oriented Programming Using Java

Course Code: 22BTCSETPC301

Semester: 3rd

Course Outcomes:

CO1	Knowledge of the structure and model of the Java programming language, (knowledge)
CO2	Use the Java programming language for various programming technologies (understanding)
CO3	Develop software in the Java programming language, (application)
CO4	Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
CO5	Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem (synthesis).

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	3	0	1	2	3	1	3	2	2	3	3	1
CO2	3	2	3	3	3	2	2	1	2	3	1	3	3	2	1
CO3	3	3	3	3	3	2	2	2	2	2	3	3	3	2	3
CO4	3	3	2	3	2	2	3	1	0	2	2	2	3	1	3
CO5	3	3	3	2	3	0	2	2	3	0	2	0	3	3	0
AVG	3	2.6	2.8	2.8	2.2	1.4	2.2	1.8	1.6	2	2	2	3	2.2	1.6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Object-Oriented Programming Using Java	2.4	2.08	2.24	2.24	1.76	1.12	1.76	1.44	1.28	1.84	1.6	1.6	2.4	1.76	1.28

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Avg CO attainment: 2.40

PO and PSO Attainment:



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Engineering Economics and Costing

Course Code: 22BTTHS304

Semester:3rd

Course Outcomes:

CO1	Evaluate the economic theories, cost concepts and pricing policies
CO2	Understand the measures of national income, the functions of banks and concepts of globalization
CO3	Apply the concepts of financial management for project appraisal
CO4	Understand accounting systems and analyze financial statements using ratio analysis
CO5	Understand the impact of inflation, taxation, depreciation. Financial planning, economic basis for replacement, project scheduling, and legal and regulatory issues are introduced and applied to economic investment and project-management problems.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	2	2	2	1	2	1	1	2	2	1	2	1	1
CO2	2	3	2	2	2	1	1	1	3	2	2	1	2	1	1
CO3	2	3	2	2	2	2	0	0	2	3	3	1	2	2	1
CO4	3	3	3	3	2	2	0	0	2	3	3	1	2	1	1
CO5	2	2	2	2	2	2	0	0	3	3	3	1	2	1	1
AVG	2.2	2.8	2.2	2.2	2	1.6	0.6	0.4	2.2	2.6	2.6	1	2	1.2	1

Avg CO attainment: 2.12

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Engineering Economics and Costing	1.5547	1.9787	1.5547	1.5547	1.4133	1.1307	0.424	0.2827	1.5547	1.8373	1.8373	0.7067	1.4133	1.4133	1.4133



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Structure Using 'C'

Course Code: 22BTES307

Semester: 3rd

Course Outcomes:

CO1	Analyze performance of algorithms and implement various operations on array and sparse matrix.
CO2	Apply the basic operations of stacks and queues to solve real world problems.
CO3	Implement different types of linked list operations and their applications.
CO4	Represent data using trees & graphs to use them in various real-life applications.
CO5	Analyze various sorting algorithms and explore different hashing techniques

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	1	1	1	0	0	1	1	3	2	1
CO2	3	3	2	2	3	1	1	1	3	3	1	3	3	1	1
CO3	3	3	3	3	3	2	2	1	3	3	2	2	3	1	1
CO4	3	3	3	3	3	2	2	1	3	3	2	2	3	1	1
CO5	3	3	3	3	3	1	1	1	2	2	1	3	3	2	1
AVG	3	3	2.6	2.6	3	1.4	1.4	1	2.2	2.2	1.4	2.2	3	1.4	1

Avg CO attainment: 2.42

PO and PSO Attainment:

	PO 1	PO 2	PO3	PO4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
Cour se Title	2.4 2	2.4 2	2.09 73	2.01 67	2.4 2	1.12 93	1.12 93	0.80 67	1.77 47	1.77 47	1.12 93	1.77 47	2.42	1.12 93	0.80 67



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Computer Organization & Architecture

Course Code: 22BTCSETPC302

Semester: 3rd

Course Outcomes:

CO1	To draw the functional block diagram of single bus architecture of a computer.
CO2	To describe the function of the instruction execution cycle, RTL interpretation of instruction addressing modes, instruction set.
CO3	To know the design concept of Control unit and operation of ALU.
CO4	To Analyze cache performance, cache optimizations, memory technologies, Protection via virtual memory and virtual machine
CO5	To assess the performance of a given CPU organization, and apply design techniques to enhance performance using pipelining and parallelism

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	3	2	1	1	1	1	2	1	3	3	1
CO2	3	2	3	3	3	1	1	1	3	3	2	2	3	2	1
CO3	3	2	2	3	3	2	2	1	2	2	2	2	3	2	1
CO4	3	3	2	3	3	2	1	1	2	2	2	3	3	2	1
CO5	3	3	3	3	2	3	2	1	3	3	2	2	0	2	1
AVG	3	2.4	2.2	2.8	2.8	2	1.4	1	2.2	2.2	2	2	2.4	2.2	1

Avg CO attainment: 2.20

PO and PSO Attainment:

	PO 1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
Computer Organization & Architecture	2.2	1.76	1.6133	2.0533	2.0533	1.4667	1.0267	0.7333	1.6133	1.6133	1.4667	1.4667	1.76	1.6133	0.7333



B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

CO1	Understand the need, purpose, and process of Value Education and self-exploration.
CO2	Develop an understanding of harmony in oneself and the human body for a fulfilling life.
CO3	Analyse human relationships, trust, respect, and justice for harmony in society.
CO4	Comprehend harmony in nature and existence as coexistence and sustainability.
CO5	Apply the principles of holistic understanding and professional ethics to real-world situations.

CO/PO- PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	1	1	1	3	3	3	3	3	1	3	1	2	1
CO2	2	3	1	1	1	3	3	3	3	3	1	3	1	2	1
CO3	2	2	1	1	1	3	3	3	3	3	1	3	1	2	1
CO4	2	2	1	1	1	3	3	3	3	3	1	3	1	2	1
CO5	2	2	1	2	2	3	3	3	3	3	1	3	1	3	1
Avg	2	2.4	1	1.2	1.2	3	3	3	3	3	1	3	1	2.2	1

	PO1	PO2	PO3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO11	PO1 2	PSO1	PSO2	PSO3
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Universal Human Value	1.4667	1.6867	0.7333	0.88	0.88	2.2	2.2	2.2	2.2	2.2	0.7333	2.2	0.7333	1.6133	0.7333
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Employability Skill-I

Course Code: 22BTCSETPC312

Semester: 3rd

Course Outcomes:

CO1	Demonstrate Proficiency in Grammar and Usage
CO2	Differentiate Between Various Types of Verbs and Their Functions
CO3	Enhance Reading and Comprehension Skills
CO4	Improve Writing Skills
CO5	Strengthen Sentence Construction and Voice Modulation

Mapping COs with POs and PSOs

CO/PO-PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	2	2	2	3	3	3	3	3	2	3
CO2	3	3	3	3	3	2	2	2	3	3	3	3	3	2	3
CO3	3	2	2	2	2	2	2	2	3	3	3	3	3	2	2
CO4	3	2	2	3	2	2	2	2	3	3	3	3	3	2	2
CO5	3	2	2	2	2	2	2	2	3	3	3	3	3	2	2
Avg	3	2.4	2.4	2.6	2.4	2	2	2	3	3	3	3	3	2	2.4

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Employability Skill-I	2.6	2.08	2.08	2.2533	2.08	1.7333	1.7333	1.7333	2.6	2.6	2.6	2.6	2.6	1.7333	2.08



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Object-Oriented Programming Using Java Lab

Course Code: 22BTCSEPPC301

Semester: 3rd

Course Outcomes:

CO1	Implement Object oriented features using Java
CO2	Apply the concept of polymorphism and inheritance
CO3	Implement exception handling
CO4	Implement advanced data structure using Collection framework.
CO5	Develop window-based application using Swing.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	2	2	0	2	2	2	0	3	3	2
CO2	3	3	3	2	3	3	2	1	3	3	2	1	3	3	2
CO3	3	2	3	3	3	2	2	2	3	2	2	2	3	2	2
CO4	3	3	3	3	3	2	2	3	3	2	2	3	3	2	2
CO5	3	2	3	3	1	1	2	3	1	2	2	3	3	1	2
AVG	3	2.4	2.8	2.6	2.4	2	2	1.8	2.4	2.2	2	1.8	3	2.2	2

Avg CO attainment: 2.52

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Object-Oriented Programming Using Java	2.52	2.016	2.352	2.184	2.016	1.68	1.68	1.596	2.016	1.848	1.68	1.596	2.52	1.848	1.68



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Structure Lab using C

Course Code: 22BTTES307

Semester: 3rd

Course Outcomes:

CO1	Implement array operations to solve problems
CO2	Understand stack operations using programming
CO3	Implementation of queue and its operations
CO4	Apply Linked list to solve problems
CO5	Apply tree concept to design the model

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	3	2	3	1	1	1	2	2	2	3	3	2	1
CO2	2	2	3	2	3	1	1	1	2	2	2	2	3	2	1
CO3	2	2	3	2	3	1	1	1	3	2	2	2	3	2	2
CO4	2	3	3	2	3	3	3	1	3	3	2	3	3	2	3
CO5	3	3	3	3	3	1	1	1	3	3	2	2	3	2	2
AVG	2.2	2.4	3	2.2	3	1.4	1.4	1	2.6	2.4	2	2.4	3	2	1.8

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Data Structure Lab using C	1.9067	2.08	2.6	2.08	2.6	1.2133	1.2133	0.8667	2.2533	2.08	1.7333	2.08	2.6	1.7333	1.56



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Computer Organization and Architecture Lab

Course Code: 22BTCSEPPC302

Semester: 3rd

Course Outcomes:

CO1	Ability to demonstrate an understanding of the design of the functional units of a digital computer system.
CO2	Ability to Assemble a new computer system and dis assemble it.
CO3	To learn about SMPS and gain knowledge about power system of a computer system
CO4	To gain knowledge on assembly programming with simulation approach.
CO5	To gain knowledge on different errors created in a computer system and approaches to resolve.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	1	3	1	2	2	2	2	2	2	1
CO2	2	2	2	2	3	3	1	1	2	2	2	2	2	2	1
CO3	2	2	2	3	3	2	2	1	3	2	2	2	2	2	1
CO4	3	3	3	3	3	1	0	1	3	3	2	2	2	3	1
CO5	3	3	3	3	3	0	0	1	3	3	2	2	3	3	1
AVG	2.4	2.4	2.4	2.6	2.8	1.4	1.2	1	2.6	2.4	2	2	2.2	2.4	1

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO 1	PO 2	PO 3	PO4	PO5	PO6	PO 7	PO8	PO9	PO1 0	PO11	PO12	PSO1	PSO 2	PSO3
Computer Organization and Architecture Lab				2.166	2.333	1.166		0.833	2.166		1.666	1.666	1.833		0.833
	2	2	2	7	3	7	1	3	7	2	7	7	3	2	3



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Evaluation of Summer Internship-I

Course Code: 22BTCSEPSI301

Semester:3rd

Course Outcomes:

CO1	Apply theoretical knowledge in a real-world industry setting to enhance practical skills
CO2	Develop problem-solving and critical-thinking abilities through hands-on experience.
CO3	Work effectively in a professional environment, understanding workplace ethics and responsibilities.
CO4	Improve communication, teamwork, and leadership skills in a collaborative setting.
CO5	Document and present internship experiences, learning outcomes, and technical contributions effectively.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	2	2	3	3	2	3	3	3	3
CO2	3	3	3	3	2	1	2	2	3	3	3	3	3	3	3
CO3	3	3	2	2	2	1	3	3	3	3	3	3	3	3	3
CO4	3	3	2	3	3	1	3	3	3	3	3	3	3	3	3
CO5	3	2	3	2	3	1	3	3	3	3	3	3	3	3	3
AVG	3	2.8	2.6	2.6	2.4	1	2.6	2.6	3	3	2.8	3	3	3	3

Avg CO attainment: 2.79

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Internship Evaluation	2.8	2.6133	2.3333	2.3333	2.1467	0.9333	2.4267	2.4267	2.8	2.8	2.6133	2.8	2.8	2.8	2.8



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Discrete Mathematical Structure

Course Code: 22BTTBS406

Semester: 4th

Course Outcomes:

CO1	Understand set theory, propositions, predicate calculus, relations and functions and their applications in Problem solving.
CO2	Understand relations and functions and their applications in Problem solving.
CO3	Understand discrete numeric functions and generating functions and their applications.
CO4	Understand concepts of groups, rings and field and their applications in error detection & correction. And to understand Boolean algebra & their applications in switching network
CO5	Understand graph-theory, and trees and their applications in Problem solving.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	1	1	0	1	1	1	3	2	2	3
CO2	3	3	3	2	2	1	1	0	2	1	1	2	2	3	3
CO3	2	3	3	2	2	1	1	1	3	1	1	3	2	2	0
CO4	2	2	2	3	2	3	3	0	0	3	1	1	1	2	2
CO5	3	2	2	3	3	1	1	1	0	1	1	3	1	3	1
AVG	2.6	2.4	2.6	2.4	2.2	1.4	1.4	0.4	1.2	1.4	1	2.4	1.6	2.4	1.8

Avg CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Title	2.08	1.92	2	1.92	1.76	1.12	1.12	0.32	0.96	1.12	0.8	1.92	1.28	1.92	1.44



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Organisational Behaviour

Course Code: 22BTTHS403

Semester: 4th

Course Outcomes:

CO1	Explain the fundamentals of Organizational Behaviour (OB) including its scope, importance, and theoretical frameworks.
CO2	Analyse personality, perception, and motivation theories and apply them in organizational settings.
CO3	Evaluate team dynamics, leadership styles, decision-making processes, and conflict resolution techniques.
CO4	Examine performance appraisal methods, employee training techniques, and organizational best practices for employee satisfaction.
CO5	Develop an understanding of organizational learning, communication, and tools for enhancing interpersonal effectiveness.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	3	1	2	1	2	2	3	2	2	1	1	1
CO2	1	3	3	1	1	2	2	3	3	2	1	2	1	3	1
CO3	1	3	2	3	1	2	2	3	3	3	1	3	0	3	1
CO4	1	0	1	0	1	3	3	2	2	3	2	3	1	1	1
CO5	1	1	0	0	0	3	3	3	3	3	2	3	0	2	1
AVG	1	2	1.6	1.4	0.8	2.4	2.2	2.6	2.6	2.8	1.6	2.6	0.6	2	1

Avg CO attainment: 2.20

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Organisational Behaviour	0.7333	1.4667	1.1733	1.0267	0.5867	1.76	1.6133	1.9067	1.9067	2.0533	1.1733	1.9067	0.44	1.4667	0.7333



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Design & Analysis of Algorithms

Course Code: 22BTCSETPC403

Semester:4th

Course Outcomes:

CO1	Understand the fundamental characteristics of algorithms and analyse their complexity using asymptotic notations and recurrence relations.
CO2	Apply fundamental algorithmic strategies such as Divide & Conquer, Greedy algorithms, and Dynamic Programming to solve computational problems
CO3	Implement and analyse Branch-and-Bound and Backtracking techniques for solving optimization problems like Knapsack, TSP, and N-Queen.
CO4	Explore elementary graph algorithms for traversal, shortest paths, minimum spanning trees, topological sorting, and network flows.
CO5	Examine computational complexity, NP-completeness, and standard NP-complete problems with an understanding of intractability.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	3	0	2	2	2	2	3	2	2
CO2	3	2	3	2	2	2	2	3	1	2	1	3	3	3	2
CO3	2	3	3	2	3	2	2	3	1	2	2	3	2	2	2
CO4	3	3	3	3	2	3	0	0	1	2	2	3	3	2	1
CO5	3	2	3	3	3	2	0	0	1	2	2	3	3	2	2
AVG	2.8	2.6	3	2.6	2.4	2.2	1.4	1.2	1.2	2	1.8	2.8	2.8	2.2	1.8

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Design & Analysis of Algorithms	2.333 3	2.083 3	2.5 2.5	2.166 7	2 2	1.833 3	1.166 7	1 1	1 1	1.666 7	1.5 1.5	2.333 3	2.333 3	1.833 3	1.5 1.5



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Base Engineering

Course Code: 22BTCSETPC404

Semester:4th

Course Outcomes:

CO1	Differentiate the database concepts from conventional file storage system and describe DBMS architecture, relational, hierarchical and network database models
CO2	Analyze application data using E-R modeling and describe the logical and physical database designs
CO3	Understand relational algebra, calculus and apply structured query language (SQL) for database definition and manipulation
CO4	Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
CO5	Use transaction management systems and recovery methods

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	3	0	0	2	2	2	3	2	2	3
CO2	1	3	2	3	3	3	0	2	2	3	3	3	2	2	0
CO3	3	2	3	2	3	3	0	0	2	2	3	3	1	2	3
CO4	3	3	2	2	3	2	0	0	2	2	0	2	1	2	0
CO5	3	2	3	2	3	0	0	0	2	2	0	3	2	2	3
AVG	2.6	2.6	2.6	2.4	2.8	2.2	0	0.4	2	2.2	1.6	2.8	1.6	2	1.8

Avg CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Data Base Engineering	2.08	2.08	2.08	1.92	2.24	1.76	0	0.32	1.6	1.76	1.28	2.24	1.28	1.6	1.44



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Advanced Computer Architecture

Course Code: 22BTCSETPE401

Semester:4th

Course Outcomes:

CO1	Understand the cost, performance, trends in technology, power in integrated circuits, and principles of computer design
CO2	Analyze the working of pipelining, exploring instruction level parallelism using static, dynamic & advanced techniques of scheduling and analyse the techniques to explore instruction level parallelism and reducing the cost & hazards using dynamic scheduling
CO3	Analyze multiprocessors & thread-level parallelism using shared, distributed, and directory-based memory models
CO4	Analyze cache performance, cache optimizations, memory technologies, protection via virtual memory and virtual machine
CO5	Understand the networking and routing for parallel systems with study of distributed computing and cloud computing architecture

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	2	0	2	2	2	3	3	2	2
CO2	2	2	3	2	3	1	2	1	2	2	1	0	2	3	2
CO3	2	3	3	3	2	1	2	1	2	2	1	0	2	3	1
CO4	1	2	2	2	2	1	2	0	2	2	3	0	2	2	1
CO5	3	2	0	2	3	2	2	0	2	2	1	3	2	3	3
AVG	2.2	2.4	2.2	2.4	2.4	1.2	2	0.4	2	2	1.6	1.2	2.2	2.6	1.8

Avg CO attainment: 2.20

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Title	1.6133	1.8333	1.6133	1.76	1.8333	0.88	1.4667	0.2933	1.4667	1.4667	1.1733	0.88	1.6133	1.9067	1.32

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Communication and Computer Network

Course Code: 22BTCSETPC405

Semester: 4th

Course Outcomes:

CO1	Understand the fundamental concepts of the Internet, TCP/IP, OSI models, and data communication systems.
CO2	Analyze error detection, correction methods, data link protocols, and multiple access mechanisms in network communication.
CO3	Explore network devices, IPv4/IPv6 addressing, subnetting, and Internet Protocol internetworking
CO4	Comprehend transport layer protocols, routing protocols, and their role in reliable communication.
CO5	Understand DNS, email protocols, HTTP, and emerging technologies like Wi-Fi and Li-Fi for modern networking.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	1	1	1	3	2	1	1	3	2	3
CO2	3	3	3	3	2	2	1	1	1	2	1	1	3	2	1
CO3	3	3	3	3	3	1	0	1	1	3	2	2	3	3	1
CO4	3	3	3	3	3	1	0	1	3	1	0	1	3	3	3
CO5	3	2	2	3	3	1	0	1	2	1	1	1	3	3	2
AVG	3	2.8	2.6	2.8	2.8	1.2	0.4	1	2	1.8	1	1.2	3	2.6	2

Avg CO attainment: 2.30

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CN	2.3	2.1467	1.9933	2.1467	2.1467	0.92	0.3067	0.7667	1.5333	1.38	0.7667	0.92	2.3	1.9933	1.5333



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Constitution of India

Course Code: 22BTTMC402

Semester: 4th

Course Outcomes:

CO1	Understand the meaning, significance, and historical evolution of the Constitution and constitutionalism.
CO2	Analyse the salient features and fundamental principles of the Indian Constitution.
CO3	Explain the scheme of Fundamental Rights, Fundamental Duties, and Directive Principles of State Policy.
CO4	Examine the structure of governance, including federalism, legislative powers, and the parliamentary system in India
CO5	Evaluate the constitutional amendment process and the historical significance of amendments in shaping Indian democracy.

Mapping COs with POs and PSOs.

CO/PO-PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	0	0	0	3	3	3	2	2	2	3	0	2	2
CO2	1	2	0	0	0	3	3	3	2	2	2	3	0	2	2
CO3	1	2	0	0	0	3	3	3	2	2	2	3	0	2	1
CO4	1	2	0	0	0	3	3	3	3	2	2	3	0	2	0
CO5	1	2	0	0	0	3	3	3	3	2	2	3	0	2	0
Avg	1	1.8	0	0	0	3	3	3	2.4	2	2	3	0	2	1

Avg CO attainment: 2.0

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Constitution of India	0.6667	1.2	0	0	0	2	2	2	1.6	1.3333	1.3333	2	0	1.3333	0.6667



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Design & Analysis of Algorithms Lab

Course Code: 22BTCSEPPC404

Semester: 4th

Course Outcomes:

CO1	Perform various asymptotic analysis of algorithms
CO2	Design and analyze algorithms for various computational problems
CO3	Solve and analyze mastery of Recursive Algorithms
CO4	Implement and analyze graph and tree algorithms
CO5	Identify and analyze standard NP-complete problems.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	3	3	1	1	3	2	2	3	2	3
CO2	2	3	3	3	3	3	3	1	2	3	2	2	2	3	3
CO3	3	2	3	2	3	1	1	1	2	1	2	2	3	1	1
CO4	3	3	3	3	3	0	0	1	2	3	2	3	3	2	3
CO5	3	2	3	3	0	0	0	1	3	1	2	1	3	3	1
AVG	2.8	2.4	3	2.6	2.4	1.4	1.4	1	2	2.2	2	2	2.8	2.2	2.2

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Title	2.33 33	2.08 33	2.5 25	2.16 67	2 20	1.16 67	1.16 67	0.83 33	1.66 67	1.83 33	1.66 67	1.66 67	2.33 33	1.83 33	1.83 33



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Database Engineering Lab

Course Code: 22BTCSEPPC405

Semester: 4th

Course Outcomes:

CO1	Apply the concept for database design, create database, and develop queries
CO2	Implement different database programs using procedures, function, and cursor
CO3	Implement database features such as triggers, packages etc.
CO4	Implement ODBC/JDBC connectivity with programming languages and write programs to store and retrieve data by using queries
CO5	Use transaction management systems and recovery methods

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	2	2	2	3	2	1	3	2	2	3	2	2	2
CO2	3	2	3	2	3	3	2	1	2	2	2	3	1	2	2
CO3	1	3	3	2	3	1	2	1	3	3	2	2	1	2	2
CO4	2	3	3	3	3	0	2	1	3	3	2	3	2	3	2
CO5	2	3	3	2	3	0	2	1	3	3	2	2	2	1	1
AVG	2	2.8	2.8	2.4	2.8	1.4	2	1	2.8	2.6	2	2.6	1.6	2	1.8

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Title	1.66 67	2.33 33	2.33 33	2 2	2.33 33	1.16 67	1.66 67	0.83 33	2.33 33	2.16 67	1.66 67	2.16 67	1.33 33	1.66 67	1.5

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Communication and Computer Network Lab

Course Code: 22BTCSEPPC406

Semester: 4th

Course Outcomes:

CO1	Demonstrate knowledge of network hardware, software, and basic networking commands
CO2	Implement IPv4 addressing and basic network topologies using connectors like routers, hubs, and switches
CO3	Develop client-server communication using socket programming with TCP and UDP protocols
CO4	Simulate network protocols like ARP, RARP, and MAC protocols using programming and network simulation tools.
CO5	Design and test applications for HTTP communication and other networking functionalities.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	2	1	2	1	1	2	2	2	2	2	3
CO2	3	3	2	2	2	1	1	1	2	2	1	2	3	2	2
CO3	3	3	3	3	3	2	2	1	2	3	3	2	3	3	1
CO4	3	3	3	3	3	1	1	1	2	3	2	2	3	3	1
CO5	3	3	3	3	3	1	1	1	3	3	2	2	3	3	2
AVG	3	2.8	2.4	2.6	2.6	1.2	1.4	1	2	2.6	2	2	2.8	2.6	1.8

Avg CO attainment: 2.60

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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DCCN LAB	2.6	2.4267	2.08	2.2533	2.2533	1.04	1.2133	0.8667	1.7333	2.2533	1.7333	1.7333	2.4267	2.2533	1.56
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PO and PSO Attainment:



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Mini Project-I

Course Code: 22BTCSEPSI402

Semester: 4th

Course Outcomes:

CO1	Identify real-world problems and formulate project objectives with an innovative solution.
CO2	Design, develop, and implement a functional prototype using appropriate tools and technologies
CO3	Apply engineering principles, research methodologies, and problem-solving techniques effectively.
CO4	Work collaboratively in a team environment, ensuring project planning, execution, and management.
CO5	Document and present project findings professionally through reports, presentations, and demonstrations.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	1	2	1	2	3	3	3	3	3	3
CO2	3	3	3	3	3	2	2	1	3	2	3	3	3	3	3
CO3	3	3	3	3	2	1	2	1	2	3	3	3	3	3	3
CO4	2	2	3	3	3	1	2	3	3	2	3	3	3	3	3
CO5	2	2	2	2	2	1	2	3	3	3	3	3	3	3	3
AVG	2.6	2.6	2.8	2.6	2.4	1.2	2	1.8	2.6	2.6	3	3	3	3	3

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Mini Project-I	2.1667	2.1667	2.3333	2.1667	2	1	1.6667	1.5	2.1667	2.1667	2.5	2.5	2.5	2.5	2.5



B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Outcomes:

CO1	Develop and implement mathematical models with DFA, NFA for regular languages and grammar for real life application.
CO2	Examine the properties of formal language and automata, their equivalence and conversion techniques.
CO3	Classify and construct grammars for different languages and vice-versa.
CO4	Construct Turing machines for context sensitive and un-restricted languages.
CO5	Illustrate the relevance of the Church-Turing thesis, explain the concept of decidability & recursive enumerability, and classify a given language to the P, NP or NPC complexity classes.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	1	1	2	0	0	2	2	0	2	3	3	0
CO2	3	3	3	2	2	2	0	0	2	2	1	2	3	3	1
CO3	3	3	3	3	3	1	1	0	2	2	1	1	3	3	2
CO4	3	3	2	3	2	0	0	0	0	2	1	1	3	3	2
CO5	3	3	3	3	3	2	1	0	0	3	2	3	3	3	0
AVG	3	3	2.6	2.4	2.2	1.4	0.4	0	1.2	2.2	1	1.8	3	3	1

Avg CO attainment: 2.34

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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FLAT	2.34	2.34	2.028	1.872	1.716	1.092	0.312	0	0.936	1.716	0.78	1.404	2.34	2.34	0.78
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Advanced JAVA

Course Code: 22BTCSETPC508

Semester: 5th

Course Outcomes:

CO1	Design a desktop application which can used for many kind of clients.
CO2	Develop an application which can also be connected with the database.
CO3	To learn Server-Side Programming using Servlets and Java Server Pages.
CO4	Design a web application which can work as a dynamic web with the help of JDBC.
CO5	To learn the operations perform on data among web applications.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	0	3	2	1	0	2	3	2	3
CO2	3	3	3	3	3	3	0	3	3	2	0	2	3	3	3
CO3	3	3	3	3	0	3	0	2	3	2	0	2	3	3	2
CO4	3	3	3	3	2	3	0	3	3	3	1	3	3	3	3
CO5	3	3	3	3	3	3	0	2	3	2	1	2	3	3	3
AVG	3	3	3	3	2.2	3	0	2.6	2.8	2	0.4	2.2	3	2.8	2.8

Avg CO attainment: 2.38

PO and PSO Attainment:

	PO 1	PO 2	PO 3	PO 4	PO5	PO 6	PO 7	PO8	PO9	PO1 0	PO11	PO12	PSO 1	PSO2	PSO3
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erating stem	2.5	2.3333	2.5	2	2.5	1	1.1667	1.1667	1.1667	1.6667	0.8333	2.3333	2.5	2.5	1.6667
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: MPMC

Course Code: 22BTCSETOE501

Semester: 5th

Course Outcomes:

CO1	Explain the architecture, pins & signals, programming model, instruction execution of 8085 Micro-processor and its interfacing with memory and I/O devices.
CO2	Explain the architecture, pins & signals, programming model, instruction execution of 8086 Micro-processor and its interfacing with memory and I/O devices.
CO3	Explain the concepts of embedded ICs, RISC and CISC processors and 8051 Micro-controller to solve simple problems using assembly language programming.
CO4	Design Micro-controller based interfacing for different applications.
CO5	Demonstrate peripheral interfacing with advanced programming of Micro-processors and Micro-controllers for real-time applications.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	0	0	2	2	2	2	2	2	2
CO2	3	2	3	2	3	2	0	0	2	2	2	2	2	2	2
CO3	3	3	3	3	3	2	0	0	3	2	2	2	2	3	3
CO4	3	3	3	3	3	2	0	0	3	2	2	2	3	3	2
CO5	3	3	3	3	3	2	0	0	3	3	2	2	1	3	3
AVG	3	2.6	3	2.6	3	2	0	0	2.6	2.2	2	2	2	2.6	2.4

Avg CO attainment: 2.24

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
MPMC	2.24	1.9413	2.24	1.9413	2.24	1.4933	0	0	1.9413	1.6427	1.4933	1.4933	1.4933	1.9413	1.792



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

Semester: 5TH			Subject Name: Essence of Indian Knowledge and Tradition										Subject Code: 20BTTMC503		
	Course Outcomes														
CO1	Understand the foundational concepts of Indian knowledge systems and their relevance to modern engineering.														
CO2	Analyze the contributions of ancient Indian science, technology, and engineering in fields such as mathematics, astronomy, and metallurgy.														
CO3	Apply ethical values and philosophical teachings from Indian traditions to engineering practices.														
CO4	Develop a sustainable and eco-friendly approach to engineering, inspired by traditional Indian environmental ethics.														
CO5	Enhance communication, teamwork, and leadership skills through discussions on Indian traditions and knowledge systems.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	1	1	2	2	3	1	2	1	3	2	2	1
CO2	2	2	2	2	1	2	2	2	1	2	1	3	2	2	2
CO3	1	1	1	1	1	3	2	3	2	2	2	3	1	3	2
CO4	1	1	1	1	1	2	3	3	2	2	1	3	1	2	3
CO5	1	1	1	1	1	2	2	2	3	3	2	3	2	3	1
Average	1.4	1.4	1.2	1.2	1	2.2	2.2	2.6	1.8	2.2	1.4	3	1.6	2.4	1.8
'3' High			'2' Moderate					'1' Low				'-' No Correlation			
Overall CO Attainment									2.4						

PO Attainment	1.12	1.12	0.96	0.96	0.80	1.77	1.77	2.09	1.45	1.77	1.12	2.42	1.29	1.93	1.45
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GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Advanced Java Lab

Course Code: 22BTCSEPPC509

Semester: 5th

Course Outcomes:

CO1	Apply multithreading concepts to develop concurrent Java applications.
CO2	Develop Java programs for client-server communication using sockets.
CO3	Perform database operations such as insertion, update, and retrieval using JDBC.
CO4	Design and implement servlets for HTTP methods, database interaction, and session tracking.
CO5	Develop JSP-based web applications for user authentication and interactive systems like online examinations.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3	1	2	2	2	3	3	2	3	2	2
CO2	3	3	3	3	3	1	0	0	3	3	0	2	3	3	2
CO3	3	3	3	3	3	1	2	2	3	3	2	2	3	3	2
CO4	3	3	3	3	3	2	0	0	3	3	2	2	3	3	2
CO5	3	3	3	3	3	2	1	1	3	3	2	2	3	2	2
AVG	3	3	3	2.8	3	1.6	0	0	2.8	3	1	2.2	3	2.6	2

Avg CO attainment: 2.65

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Adv JAVA Lab	2.65	2.65	2.65	2.4733	2.65	1.4133	1.2367	0.8833	2.4733	2.65	2.2083	1.9433	2.65	2.2967	1.766



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: **OPERATING SYSTEM LAB**

Course Code: **22BTCSEPPC508**

Semester: **5th**

Course Outcomes:

CO1	Demonstrate proficiency in Unix commands, editors, and system calls.
CO2	Develop and simulate basic Unix commands using C programming.
CO3	Write simple and advanced shell programs incorporating loops and conditions.
CO4	Implement and analyze CPU scheduling algorithms like SJF and Round Robin.
CO5	Apply and evaluate memory allocation and page replacement algorithms.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	2	1	3	3	3	2	3	2	3
CO2	3	3	3	3	3	2	0	1	2	3	0	3	3	2	0
CO3	3	3	3	3	3	0	2	0	3	3	2	3	3	2	2
CO4	3	3	3	3	3	2	2	1	2	2	3	3	3	2	3
CO5	3	3	3	3	3	0	1	2	3	3	2	3	3	2	2
AVG	3	2.8	3	2.8	2.8	1.2	1.4	1	2.6	2.8	2	2.8	3	2	2

Avg CO attainment: **2.63**

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
OS Lab	2.63	2.4547	2.63	2.4547	2.4547	1.052	1.2273	0.8767	2.2793	2.4547	1.7533	2.4547	2.63	1.7533	1.7533

GITA AUTONOMOUS COLLEGE, BHUBANESWAR



(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Web Technology Lab

Course Code: 22BTCSEPPC510

Semester: 5th

Course Outcomes:

CO1	Design and develop web pages using HTML for creating structured documents, incorporating tables, forms, frames, and multimedia elements.
CO2	Apply CSS (Inline, Internal, External) for styling web pages to enhance presentation and user experience.
CO3	Implement dynamic interactivity in web pages using JavaScript for input validation, event handling, and basic computations.
CO4	Use XML, DTD, and Schema to represent and validate structured data.
CO5	Develop server-side scripts using PHP for form handling, database interaction, and user authentication with session management.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	0	2	2	3	2	3	3	2	2
CO2	3	3	3	2	2	2	0	2	2	3	3	3	3	2	3
CO3	3	2	3	2	3	2	0	2	3	3	2	3	3	2	1
CO4	3	3	3	3	3	2	0	2	3	3	3	3	3	2	2
CO5	3	3	3	3	3	2	0	2	3	3	2	3	3	3	2
AVG	3	2.6	3	2.4	2.6	2	0	2	2.6	3	2.4	3	3	2.2	2

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
WT Lab	2.5	2.1667	2.5	2.0833	2.1667	1.6667	1.6667	1.6667	2.1667	2.5	2.0833	2.5	2.5	1.8333	1.6667



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Evaluation of Summer Internship-II

Course Code: 22BTCSEPSI503

Semester: 5th

Course Outcomes:

CO1	Apply theoretical knowledge in a real-world industry setting to enhance practical skills
CO2	Develop problem-solving and critical-thinking abilities through hands-on experience.
CO3	Work effectively in a professional environment, understanding workplace ethics and responsibilities.
CO4	Improve communication, teamwork, and leadership skills in a collaborative setting.
CO5	Document and present internship experiences, learning outcomes, and technical contributions effectively.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	2	2	3	3	2	3	3	3	3
CO2	3	3	3	3	2	1	2	2	3	3	3	3	3	3	3
CO3	3	3	2	2	2	1	3	3	3	3	3	3	3	3	3
CO4	3	3	2	3	3	1	3	3	3	3	3	3	3	3	3
CO5	3	2	3	2	3	1	3	3	3	3	3	3	3	3	3
AVG	3	2.8	2.6	2.6	2.4	1	2.6	2.6	3	3	2.8	3	3	3	3

Avg CO attainment: 2.79

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Internship Evaluation	2.8	2.6133	2.3333	2.3333	2.1467	0.9333	2.4267	2.4267	2.8	2.8	2.6133	2.8	2.8	2.8	2.8



COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: EMPLOYEABILITY SKILL-III

Course Code: 22BTCSETPC514

Semester: 5th

Course Outcomes:

CO1	Demonstrate proficiency in database concepts including ER diagrams, normalization, and SQL queries for real-world problem-solving.
CO2	Apply quantitative aptitude techniques to solve problems related to profit & loss, time-work, speed-distance, and related scenarios.
CO3	Implement data structures and object-oriented programming concepts using C, C++, Java, and Python for logical and coding-based assessments.
CO4	Analyze and solve logical reasoning problems involving puzzles, syllogisms, permutations, and other pattern-based questions
CO5	Integrate domain knowledge and problem-solving skills to prepare effectively for technical assessments and placement drives.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	2	2	2	3	2	2	2	2	3
CO2	3	3	2	3	2	2	2	2	2	3	2	3	2	2	3
CO3	3	2	2	1	2	2	2	2	3	3	3	2	2	3	3
CO4	3	2	2	1	1	2	2	2	2	3	3	2	2	2	3
CO5	3	3	2	3	3	2	2	2	2	3	3	3	2	2	3
AVG	3	2.6	2	2	2	2	2	2	2.2	3	2.6	2.4	2	2.2	3

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Mini Project-II	2.2533	2.2533	2.4267	2.2533	2.08	1.04	1.7333	1.56	2.4267	2.6	2.6	2.6	2.6	2.6	2.2533



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Software Engineering

Course Code: 22BTCSETPC609

Semester: 6th

Course Outcomes:

CO1	Describe fundamentals of software engineering and life cycle models and building of software products based on their characteristics.
CO2	Apply various requirement analysis tools for the requirement engineering process.
CO3	Create high-level & detail-level design of a software using various design methodologies.
CO4	Code, review, test and maintain software products confirming to quality standards.
CO5	Maintain software products confirming to quality standards.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	3	2	2	3	3	3	3	3	2	2
CO2	3	3	3	2	3	2	1	2	1	2	2	3	3	2	2
CO3	3	2	3	3	3	2	1	1	3	3	3	3	3	3	1
CO4	3	3	3	3	3	2	2	3	3	3	2	3	3	3	3
CO5	3	3	3	3	3	2	1	2	3	3	3	3	3	3	2
AVG	3	2.6	3	2.6	2.8	2.2	1.4	2	2.6	2.8	2.6	3	3	2.6	2

Avg CO attainment: 2.20

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
SE	2.2	1.9067	2.2	1.9067	2.0533	1.6133	1.0267	1.4667	1.9067	2.0533	1.9067	2.2	2.2	1.9067	1.4667



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Cloud Computing

Course Code: 22BTCSETPE610

Semester: 6th

Course Outcomes:

CO1	Understand the evolution, concepts, and technologies of distributed and cloud computing systems.
CO2	Explain cloud computing service and deployment models, virtualization types, and challenges in cloud environments.
CO3	Analyze and compare cloud implementations like AWS, Google AppEngine, and VMware.
CO4	Explore platform-specific development using environments like Azure, Salesforce, and Google Apps
CO5	Evaluate cloud security mechanisms, including data protection, access control, and compliance standards.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	1	2	1	0	2	2	2	2	3	2	2
CO2	3	2	2	2	2	2	0	0	1	1	0	2	3	2	2
CO3	3	3	3	3	3	2	0	1	2	2	1	3	3	3	2
CO4	2	3	3	3	3	3	1	1	1	1	1	3	3	3	3
CO5	3	2	3	3	3	1	1	1	1	1	1	3	3	2	1
AVG	2.8	2.4	2.6	2.6	2.4	2	0.6	0.6	1.4	1.4	1	2.6	3	2.4	2

Avg CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CC	2.24	1.92	2.08	2.08	1.92	1.6	0.56	0.48	1.12	1.2	0.8	2.08	2.4	1.92	1.6



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Compiler Design

Course Code: **22BTCSETOE604** Semester: 6th

Course Outcomes:

CO1	Review different phases and passes of compiler and its underlying formal models such as finite state automata, and their connection to language definition through regular expressions and grammars.
CO2	Differentiate various parser construction techniques.
CO3	Able to use formal attributed grammars for specifying the syntax and semantics of programming languages and able to generate intermediate code generation.
CO4	Able to generate the code for the target machine.
CO5	Use code optimization techniques to improv the performance of a program in terms of speed & space.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	0	0	2	3	2	3	3	3	2
CO2	3	3	3	2	3	1	0	0	1	2	0	3	3	2	2
CO3	3	3	3	3	3	1	0	0	2	2	1	3	3	2	2
CO4	3	3	3	3	3	1	0	0	1	1	1	3	3	2	2
CO5	3	3	3	3	3	1	0	0	1	2	1	3	3	3	2
AVG	3	3	2.8	2.6	3	1.2	0	0	1.4	2	1	3	3	2.4	2

Avg CO attainment: 2.10

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CD	2.1	2.1	1.96	1.82	2.1	0.84	0	0	0.98	1.4	0.7	2.1	2.1	1.68	1.4



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: **ENTREPRENEURSHIP DEVELOPMENT**

Course Code: 22BTTHS605 Semester: 6th

Course Outcomes:

CO1	Know the various concepts related to entrepreneurship and intrapreneurship and know their classifications.														
CO2	Able to identify opportunities in the market according to the entrepreneurial environments.														
CO3	Get knowledge about the capital flow and its management to start up and run a business														
CO4	Identify the shortfalls and causes of business failures.														
CO5	Get knowledge about different policies made by Government and other regulatory authorities.														
	CO-PO Mapping												CO-PSO Mapping		
Sl. No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
CO1	-	1	-	1	-	-	-	-	-	1	1	3	3	1	1
CO2	1	2	2	3	3	-	-	-	-	1	2	3	3	2	3
CO3	-	2	-	1	3	-	-	-	-	1	3	3	1	2	2
CO4	1	2	2	3	3	-	-	-	-	1	3	3	3	2	3
CO5	-	2	-	-	-	-	-	-	-	1	3	3	3	2	2
Average	1	1.8	2	2	3	-	-	-	-	1	2.4	3	2.6	1.8	2.4
'3' High '2' Moderate '1' Low '-' No Correlation															
Overall CO Attainment									2.42						
PO Attainment	0.80	1.45	1.61	1.61	2.42	-	-	-	-	0.80	1.93	2.42	2.09	1.45	1.93



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Software Engineering LAB

Course Code: **22BTCSEPPC612** Semester: 6th

Course Outcomes:

CO1	Analyze and document requirements for software projects through effective requirement analysis and specification.
CO2	Design function-oriented solutions using tools such as structure charts and DFDs.
CO3	Develop object-oriented design models using UML diagrams, including use case, class, sequence, activity, and state diagrams.
CO4	Implement and test the designed software system using modern programming languages and tools.
CO5	Conduct integration, system, and performance testing to ensure software quality and functionality.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3	2	1	1	3	3	3	3	3	2	3
CO2	3	3	3	2	3	1	0	1	2	3	3	2	3	2	2
CO3	3	3	3	3	3	1	0	1	2	3	3	1	3	3	2
CO4	3	3	3	3	3	1	0	0	2	3	3	2	3	3	2
CO5	3	3	3	3	3	1	1	0	2	3	3	2	3	3	1
AVG	3	3	3	2.6	3	1.2	0.4	0.6	2.2	3	3	2	3	2.6	2

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
SE LAB	2.6	2.6	2.6	2.2533	2.6	1.04	0.3467	0.52	1.9067	2.6	2.6	1.7333	2.6	2.2533	1.7333



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Seminar

Course Code: 22BTCSEPPC613

Semester: 6th

Course Outcomes:

CO1	Gain in-depth knowledge of emerging technologies and their real-world applications."
CO2	"Develop problem-solving skills through technical discussions and case studies."
CO3	"Enhance practical understanding of industry trends and innovations."
CO4	"Improve technical communication and presentation skills for professional growth."
CO5	"Foster collaboration and networking with experts and peers in the field."

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3	2	2	1	2	3	3	3	3	3	2
CO2	3	3	3	3	2	2	2	1	3	3	3	3	3	3	2
CO3	3	3	3	3	3	2	2	1	2	3	3	3	3	3	2
CO4	2	2	2	2	3	1	1	3	3	3	3	3	3	2	2
CO5	2	2	2	2	3	1	1	3	3	3	3	3	3	2	2
AVG	2.6	2.6	2.6	2.4	2.8	1.6	1.6	1.8	2.6	3	3	3	3	2.6	2

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Seminar	2.4267	2.52	2.4267	2.3333	2.6133	1.4933	1.4933	1.68	2.4267	2.8	2.8	2.8	2.8	2.4267	1.8667

GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Deep Learning

Course Code: 22BTCSETOE604

Semester: 6th

Course Outcomes:

Course Name: Deep Learning					
Course Code : 22BTCSETOE604					
	L	T	P	Category	OE
Contact Hrs./Week	3	0	0	Internal Marks	40
Contact Hrs./Sem.	40	0	0	Semester Marks	60
Credits.	3	0	0	Exam Hours	3
Course Objectives					
1. To introduce building blocks of neural network architecture 2. To learn deep learning algorithms and its problem settings, optimization techniques 3. To understand representation and transfer of knowledge using deep learning 4. To learn to use deep learning tools and frameworks for solving real-life problems 5. To explore the applications for Deep Learning					
Prerequisites: The first course in machine learning taught in previous semester, along with knowledge of probability, optimization, and linear algebra are required.					
Units					Teaching Hours
Unit-1 INTRODUCTION					
Introduction to deep learning, logical computations with neurons, perceptron, backpropagation, historical trends, applications, and use-cases for industry					8
Unit-2 DEEP NETWORK					
Deep Networks: Training a deep neural network (DNN), hidden layers, activation functions, fine-tuning neural network hyperparameters. Custom Deep Neural Networks: vanishing/exploding gradient issues, reusing pre-trained layers, optimizers, l1 and l2 regularization, dropout, Optimization Techniques, Gradient Descent, Batch Optimization					10
Unit -3 CONVOLUTIONAL NEURAL NETWORKS (CNNs):					
Convolutional neural networks (CNNs): convolutional layer, filters, stacking, pooling layer, CNN architectures.					6
Unit-4 RECURRENT NEURAL NETWORKS (RNNs) AND NORMALIZATION.					
Recurrent neurons, unrolling, input and output sequences, training RNNs, deep RNNs, LSTM cell, GRU cell.					10

Effective training in Deep Net- early stopping, Dropout, Batch Normalization, Instance Normalization, Group Normalization												
Representation Learning and Generative Learning: Auto encoders, type of auto-encoders.												
Introduction to GAN, application of GAN, components of GAN, Steps to train GAN, Working of GAN, types of GAN, advantages and disadvantages of GAN.												
Unit-5 CASE STUDY AND APPLICATIONS												
Applications in vision, speech and natural language processing, Bioinformatics- Face Recognition.	6											
Course outcomes: At the end of this course, the students will be able to: 1. Incorporate the concept of neural network, Feedforward neural networks, backpropagation learning. 2. Exploring the concept of deep neural network, regularisation and optimization techniques. 3. Explore the concepts of CNN and apply this to solve related problems. 4. Apply RNN and Autoencoder techniques to solve real-world machine learning problems. 5. Implement deep learning algorithms and solve real-world problems												
<u>Text Books:</u> 1. Goodfellow, Y. Bengio, and A. Courville, Deep Learning, The MIT Press, 2016. 2. K. P. Murphy, Machine Learning : A Probabilistic Perspective, The MIT Press, 2012. R. S. Sutton and A. G. Barto, Reinforcement Learning : An Introduction, 2nd Edition, The MIT Press, 2018. 3. J. S. Taylor, M. Mitchell, and N. Cristianini, Kernel Methods for Pattern Analysis, Cambridge University Press, 2004.												
<u>Reference Books:</u> 1. S. Haykin, Neural Networks and Learning Machines , Prentice Hall of India, 2010 2. Satish Kumar, Neural Networks - A Class Room Approach, Second Edition, Tata McGraw-Hill, 2013 3. B. Yegnanarayana, Artificial Neural Networks, Prentice- Hall of India, 1999 4. C.M. Bishop, Pattern Recognition and Machine Learning, Springer, 2006												
<u>Online Resources:</u> https://nptel.ac.in/courses/106/105/106105215/ : by Prof. P. K. Biswas, IIT Kharagpur 2. https://nptel.ac.in/courses/106/106/106106184/ : by Prof. S. Iyengar and Prof. Padmavati, IIT Ropar 3. https://nptel.ac.in/courses/106/106/106106201/ : by Prof. M. Khapra, IIT Madras 4. https://cedar.buffalo.edu/~srihari/CSE676												
<u>No of Assignment: 5</u>												
<u>Industry Expert Talk: 3</u>												
Mapping of COs to POs and PSOs (1: Low, 2: Medium, 3: High)												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1		1								1
CO2	2	2	2	1							1	1
CO3	1	2	3	1			2					1
CO4	1	2	3	1			2					1
CO5	1		1	2	3		2		1		1	1



COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: EMPLOYEEABILITY SKILL-IV

Course Code: 22BTCSEPSI503

Semester: 6th

Course Outcomes:

CO1	Enhance vocabulary and language proficiency by applying contextual understanding and analogical reasoning to improve word usage and sentence construction.
CO2	Develop reading and listening comprehension by interpreting, analyzing, and synthesizing information from various text and audio materials.
CO3	Demonstrate effective speaking and communication skills through structured extempore, group discussions, and mock interviews.
CO4	Construct coherent and grammatically accurate writing outputs such as essays, CVs, and emails using appropriate tenses and vocabulary.
CO5	Apply critical and logical thinking skills to solve verbal reasoning problems and participate in decision-making scenarios using Verbal Skill Training (VST).

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	2	2	2	3	2	2	2	2	3
CO2	3	3	2	3	2	2	2	2	2	3	2	3	2	2	3
CO3	3	2	2	1	2	2	2	2	3	3	3	2	2	3	3
CO4	3	2	2	1	1	2	2	2	2	3	3	2	2	2	3
CO5	3	3	2	3	3	2	2	2	2	3	3	3	2	2	3
AVG	3	2.6	2	2	2	2	2	2	2.2	3	2.6	2.4	2	2.2	3

Avg CO attainment: 2.60

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Mini Project-II	2.2533	2.2533	2.4267	2.2533	2.08	1.04	1.7333	1.56	2.4267	2.6	2.6	2.6	2.6	2.6	2.2533

COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B. TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Mini Project-II

Course Code: 22BTCSEPSI503

Semester: 5th

Course Outcomes:

CO1	Identify real-world problems and formulate project objectives with an innovative solution.
CO2	Design, develop, and implement a functional prototype using appropriate tools and technologies
CO3	Apply engineering principles, research methodologies, and problem-solving techniques effectively.
CO4	Work collaboratively in a team environment, ensuring project planning, execution, and management.
CO5	Document and present project findings professionally through reports, presentations, and demonstrations.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	1	2	1	2	3	3	3	3	3	2
CO2	3	3	3	3	3	2	3	1	3	3	3	3	3	3	2
CO3	3	3	3	3	2	1	2	1	3	3	3	3	3	3	3
CO4	2	2	3	3	3	1	1	3	3	3	3	3	3	3	3
CO5	2	2	2	2	2	1	2	3	3	3	3	3	3	3	3
AVG	2.6	2.6	2.8	2.6	2.4	1.2	2	1.8	2.8	3	3	3	3	3	2.6

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Mini Project-II	2.25 33	2.25 33	2.42 67	2.25 33	2.0 8	1.0 4	1.73 33	1.5 6	2.42 67	2.6	2.6	2.6	2.6	2.6	2.25 33



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: ARTIFICIAL INTELLIGENCE

Course Code: 22BTCSETOE707

Semester: 7th

Course Outcomes:

CO1	Comprehend the fundamentals of AI, search techniques, and knowledge representation to analyze real-world activities.
CO2	Identify and formulate problems suitable for AI solutions using logical reasoning and rule-based approaches.
CO3	Understand probabilistic reasoning, non-monotonic reasoning, and slot-filler structures for knowledge representation.
CO4	Design and empirically evaluate AI algorithms for game playing, planning, and learning methods.
CO5	Explore the concepts of expert systems and natural language processing for real-world applications.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	3	2	1	2	2	1	3	3	2	3
CO2	3	3	2	3	3	2	1	1	1	2	1	2	3	2	3
CO3	3	3	2	2	3	2	1	1	2	2	1	3	3	3	3
CO4	3	2	3	3	3	2	2	1	2	2	1	3	3	3	3
CO5	3	3	3	2	3	2	1	1	1	2	1	3	3	3	3
AVG	3	2.8	2.6	2.6	2.8	2.2	1.4	1	1.6	2	1	2.8	3	2.6	3

Avg CO attainment: 2.42

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Artificial Intelligence	2.4	2.24	2.08	2.08	2.24	1.76	1.12	0.8	1.28	1.6	0.8	2.24	2.4	2.08	2.4



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Computer Graphics

Course Code: 22BTCSETPE717 Semester: 7th

Course Outcomes:

CO1	Describe the basics of computer graphics and its applications
CO2	Explore standard line, circle, and area-filling algorithms
CO3	Design transformation models in 2D and 3D spaces
CO4	Generate curves and mapping using projections
CO5	Hidden lines, surface detection, and color models

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	0	1	2	2	1	2	1	2	2
CO2	3	3	3	3	3	1	0	1	1	2	1	2	3	3	2
CO3	3	3	3	3	2	1	0	1	2	1	1	1	3	3	2
CO4	3	2	3	2	3	1	0	1	1	1	1	1	3	3	2
CO5	3	3	2	2	3	1	0	1	1	1	1	2	3	3	2
AVG	3	2.8	2.6	2.4	2.8	1.2	0	1	1.4	1.4	1	1.6	2.6	2.8	2

Avg CO attainment: 2.34

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Computer Graphics	2.34	2.184	2.028	1.872	2.184	0.936	0	0.78	1.092	1.092	0.78	1.248	2.028	2.184	1.56



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Cryptography and Network Security

Course Code: 22BTCSETPE713 Semester: 7th

Course Outcomes:

CO1	Identify security objectives & threats and enumerate necessary services & mechanisms for effective counter measures.
CO2	Explain the mathematical foundation of cryptography through modular arithmetic, linear algebra, number theory, factorization and discrete logarithm.
CO3	Analyze the performance of traditional symmetric key cryptography techniques and modern symmetric key ciphers like DES and AES.
CO4	Apply public key cryptography and Hash algorithms in encryption, data integrity, authentication, digital signature, and key exchange.
CO5	Apply cryptography techniques in various network security protocols like SSL, TLS, PGP, S/MIME, and IPsec and understand E-mail Security.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	1	1	2	1	2	1	2	1	2	2
CO2	3	3	3	3	3	1	2	1	2	2	1	2	3	3	2
CO3	3	3	3	3	2	1	2	2	1	2	1	1	2	2	2
CO4	3	3	3	3	2	1	1	2	2	2	1	3	3	3	2
CO5	3	3	3	3	2	1	1	1	1	2	1	2	2	3	2
AVG	3	3	3	3	2.4	1	1.4	1.6	1.4	2	1	2	2.2	2.6	2

Avg CO attainment: 2.23

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Cryptography and network security	2.23	2.23	2.23	2.23	1.784	0.7433	1.0407	1.1893	1.0407	1.4867	0.7433	1.4867	1.6353	1.9327	1.4867



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Data Analytics

Course Code: 22BTCSETOE710

Semester: 7th

Course Outcomes:

CO1	Understand the fundamentals of data science, its applications across various sectors, and the role of Python in data science.
CO2	Explore the data analytics process and apply both quantitative and graphical techniques in exploratory data analysis (EDA).
CO3	Learn feature generation and selection techniques to extract meaningful insights from data, with an emphasis on customer retention.
CO4	Gain hands-on experience in data visualization by learning the principles and tools to create visual representations of complex datasets.
CO5	Understand the ethical considerations in data science, including privacy, security, and the responsibilities of next-generation data scientists.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	0	1	1	2	1	2	3	2	3
CO2	3	3	3	3	3	1	0	1	2	2	1	3	3	2	3
CO3	3	3	3	3	3	1	0	1	2	2	1	1	3	3	3
CO4	2	3	3	3	2	1	0	1	1	2	1	3	3	3	3
CO5	2	2	2	2	2	1	0	1	1	2	1	2	3	3	3
AVG	2.6	2.8	2.6	2.6	2.4	1.2	0	1	1.4	2	1	2.2	3	2.6	3

Avg CO attainment: 2.40

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Data Analytics	2.08	2.24	2.08	2.08	1.92	0.96	0	0.8	1.12	1.6	0.8	1.76	2.4	2.08	2.4



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Real Time System

Course Code: 22BTCSETOE713 Semester:7th

Course Outcomes:

CO1	Describe the fundamentals of real-time systems, including their characteristics, applications, and timing constraints.
CO2	Explain real-time task scheduling concepts and apply scheduling algorithms such as EDF and RMA.
CO3	Analyze resource-sharing protocols, task dependencies, and scheduling techniques for multiprocessor and distributed systems.
CO4	Explore features of commercial real-time operating systems and the characteristics of real-time databases
CO5	Evaluate real-time communication concepts, including LAN communication, QoS models, and resource reservation techniques.

Mapping COs with POs and PSOs.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3	2	0	1	2	2	1	2	3	2	3
CO2	3	3	3	3	3	1	0	1	1	2	1	3	3	2	2
CO3	3	2	3	2	3	1	0	1	1	2	1	3	3	3	2
CO4	3	3	2	2	3	1	0	1	1	2	1	3	3	2	1
CO5	3	3	2	3	2	1	0	1	1	2	1	3	2	2	1
AVG	3	2.8	2.6	2.4	2.8	1.2	0	1	1.2	2	1	2.8	2.8	2.2	1.8

Avg CO attainment: 2.50

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Realtime Systems	2.5	2.3333	2.1667	2	2.3333	1	0	0.8333	1	1.6667	0.8333	2.3333	2.3333	1.8333	1.5



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Grand viva-voce

Course Code: 22BTCSEPPSI707

Semester: 7th

Course Outcomes:

CO1	Demonstrate a strong understanding of core engineering concepts and their practical applications.
CO2	Analyze and solve technical and conceptual questions across multiple engineering domains.
CO3	Develop confidence and effective communication skills to articulate technical knowledge clearly.
CO4	Apply problem-solving, critical thinking, and interdisciplinary knowledge in real-world scenarios.
CO5	Exhibit professionalism, ethical reasoning, and adaptability for lifelong learning and career growth.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	2	2	3	3	2	3	3	3	3
CO2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3
CO3	3	2	2	2	2	2	2	3	2	3	3	3	2	3	3
CO4	3	2	2	3	2	3	3	2	3	3	3	3	3	3	3
CO5	3	3	3	2	2	2	2	3	2	3	3	3	2	3	3
AVG	3	2.6	2.6	2.6	2	2.2	2.2	2.4	2.6	3	2.8	3	2.6	3	3

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Grand Viva-voce	2.80	2.43	2.43	2.43	1.87	2.05	2.05	2.24	2.43	2.80	2.61	2.80	2.43	2.80	2.80

**GITA AUTONOMOUS COLLEGE, BHUBANESWAR**

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26**Course Title:** Minor Project**Course Code:** 22BTCSEPPSI706**Semester:** 7th**Course Outcomes:**

CO1	Identify real-world problems and formulate project objectives with an innovative solution.
CO2	Design, develop, and implement a functional prototype using appropriate tools and technologies
CO3	Apply engineering principles, research methodologies, and problem-solving techniques effectively.
CO4	Work collaboratively in a team environment, ensuring project planning, execution, and management.
CO5	Document and present project findings professionally through reports, presentations, and demonstrations.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	1	0	1	2	3	3	3	3	3	3
CO2	3	3	3	3	3	2	0	1	3	3	3	3	3	3	3
CO3	3	3	3	3	3	1	0	1	3	3	3	3	3	3	3
CO4	3	3	3	3	3	1	0	3	3	3	3	3	3	3	3
CO5	3	2	2	2	2	1	0	3	3	3	3	3	3	3	3
AVG	3	2.8	2.8	2.6	2.6	1.2	0	1.8	2.8	3	3	3	3	3	3

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Minor Project	2.8	2.6133	2.6133	2.4267	2.4267	1.12	0	1.68	2.6133	2.8	2.8	2.8	2.8	2.8	2.8



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Major Project

Course Code: 22BTCSEPPSI809

Semester: 8th

Course Outcomes:

CO1	Identify real-world problems and formulate project objectives with an innovative solution.
CO2	Design, develop, and implement a functional prototype using appropriate tools and technologies
CO3	Apply engineering principles, research methodologies, and problem-solving techniques effectively.
CO4	Work collaboratively in a team environment, ensuring project planning, execution, and management.
CO5	Document and present project findings professionally through reports, presentations, and demonstrations.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	1	0	1	2	3	3	3	3	3	3
CO2	3	3	3	3	3	2	0	1	3	3	3	3	3	3	3
CO3	3	3	3	3	2	1	0	1	3	3	3	3	3	3	3
CO4	3	3	3	3	3	1	0	3	3	3	3	3	3	3	3
CO5	3	2	2	2	3	1	0	3	3	3	3	3	3	3	3
AVG	3	2.8	2.8	2.6	2.6	1.2	0	1.8	2.8	3	3	3	3	3	3

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Major Project	2.8	2.6133	2.6133	2.4267	2.4267	1.12	0	1.68	2.6133	2.8	2.8	2.8	2.8	2.8	2.8

**GITA AUTONOMOUS COLLEGE, BHUBANESWAR**

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26**Course Title:** Internship Evaluation**Course Code:** 22BTCSEPSI809**Semester:** 8th**Course Outcomes:**

CO1	Apply theoretical knowledge in a real-world industry setting to enhance practical skills
CO2	Develop problem-solving and critical-thinking abilities through hands-on experience.
CO3	Work effectively in a professional environment, understanding workplace ethics and responsibilities.
CO4	Improve communication, teamwork, and leadership skills in a collaborative setting.
CO5	Document and present internship experiences, learning outcomes, and technical contributions effectively.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	1	2	2	3	3	2	3	3	3	3
CO2	3	3	3	3	2	1	2	2	3	3	3	3	3	3	3

CO3	3	3	2	2	2	1	3	3	3	3	3	3	3	3	3
CO4	3	3	2	3	3	1	3	3	3	3	3	3	3	3	3
CO5	3	2	3	2	3	1	3	3	3	3	3	3	3	3	3
AVG	3	2.8	2.6	2.6	2.4	1	2.6	2.6	3	3	2.8	3	3	3	3

Avg CO attainment: 2.79

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Internship Evaluation	2.8	2.6133	2.3333	2.3333	2.1467	0.9333	2.4267	2.4267	2.8	2.8	2.6133	2.8	2.8	2.8	2.8



GITA AUTONOMOUS COLLEGE, BHUBANESWAR

(Affiliated to BPUT, Odisha)

B.TECH, COMPUTER SCIENCE AND ENGINEERING, BATCH: 2022-26

Course Title: Grand viva-voce

Course Code: 22BTCSEPPSI810

Semester: 8th

Course Outcomes:

CO1	Demonstrate a strong understanding of core engineering concepts and their practical applications.
CO2	Analyze and solve technical and conceptual questions across multiple engineering domains.
CO3	Develop confidence and effective communication skills to articulate technical knowledge clearly.
CO4	Apply problem-solving, critical thinking, and interdisciplinary knowledge in real-world scenarios.
CO5	Exhibit professionalism, ethical reasoning, and adaptability for lifelong learning and career growth.

Mapping COs with POs and PSOs.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	2	2	2	2	3	3	2	3	3	3	3
CO2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3
CO3	3	2	2	2	2	2	2	3	2	3	3	3	2	3	3
CO4	3	2	2	3	2	3	3	2	3	3	3	3	3	3	3
CO5	3	3	3	2	2	2	2	3	2	3	3	3	2	3	3
AVG	3	2.6	2.6	2.6	2	2.2	2.2	2.4	2.6	3	2.8	3	2.6	3	3

Avg CO attainment: 2.80

PO and PSO Attainment:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Grand Viva- voce	2.80	2.43	2.43	2.43	1.87	2.05	2.05	2.24	2.43	2.80	2.61	2.80	2.43	2.80	2.80

