GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT (GITAM)

(Deemed to be University)

VISAKHAPATNAM * HYDERABAD * BENGALURU

Accredited by NAAC with A^{++} Grade

GITAM School of Science

CURRICULUM AND SYLLABUS

4 Year Undergraduate Programme
UCSCI01: Bachelor of Computer Applications

w.e.f. 2025-26 admitted batch

(Updated on July 2025)

Academic Regulations

R21UG: Academic Regulations for the Undergraduate Programmes B.Tech. (All branches except CSBS), B.Com. and BCA

https://www.gitam.edu/academic-regulations

GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Vision

GITAM will be an exceptional knowledge-driven institution advancing on a culture of honesty and compassion to make a difference to the world.

Mission

- Build a dynamic application-oriented education ecosystem immersed in holistic development.
- Nurture valuable futures with global perspectives for our students by helping them find their ikigai.
- Drive impactful integrated research programmes to generate new knowledge, guided by integrity, collaboration, and entrepreneurial spirit.
- Permeate a culture of kindness within GITAM, fostering passionate contributors.

Quality Policy

To achieve global standards and excellence in teaching, research, and consultancy by creating an environment in which the faculty and students share a passion for creating, sharing and applying knowledge to continuously improve the quality of education.

GITAM School of Science

Vision

Nurturing a high-quality Science Education and Research by providing a best learning ecosystem to create world class academicians and researchers.

Mission

- To teach the most renewed curriculum that lay the foundation for students to start exciting careers in academia, research, and industry.
- To foster an environment of healthy curiosity, an innovative mindset, and a strong desire to contribute to the science world.
- To advance our understandings of the natural processes of Physical, Chemical and Biological systems for a better habitable world.
- To inculcate a strong sense of empathy, integrity, and trust in the GITAM Fraternity with a strong commitment towards society and environment.

VISION AND MISSION OF THE DEPARTMENT

VISION

To become a leading hub for education and innovation in computer science, empowering students with emerging technologies for global tech leadership through pioneering research and active community engagement.

MISSION

- Foster a new generation of skilled computer science professionals through a well- structured curriculum that encourages continuous learning and prepares students for diverse, dynamic careers in emerging technologies.

- Conduct robust research in emerging fields of computer science and engage in strategic collaborations with industry and community partners to make significant contributions to society.

- Uphold the highest ethical standards, transparency, and accountability while fostering inclusivity and diversity in pushing the boundaries of technological advancement.

Bachelor of Computer Applications

(w.e.f. academic year 2023-24 batch)

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1 **Foundational Excellence**
Graduates will develop a solid foundation in computer applications, including programming, web technologies, software engineering, and database management to solve real-world problems effectively.

PEO 2 **Professional Development**
Graduates will exhibit professional skills including effective communication, critical thinking that prepare them for leadership roles in the IT sector.

PEO 3 **Innovation and Problem Solving**
Graduates will be equipped to leverage their knowledge and skills in advanced technologies to develop and implement innovative solutions that address complex challenges in various fields, demonstrating a strong ability to improve existing systems and create new opportunities.

PEO4 **Community and Environmental Responsibility**
Graduates will demonstrate awareness and responsibility towards societal, environmental, and ethical issues by actively participating in community services and sustainable practices.

Mapping of the Mission of the School with the PEOs

	PEO1	PEO2	PEO3	PEO4
M1	3	3	2	1
M2	2	2	3	1
M3	1	2	1	3

3-High correlation, 2 – Medium correlation, 1- Low correlation

PROGRAMME OUTCOMES (POs)
&
PROGRAMME SPECIFIC OUTCOMES (PSOs)

PO1	Complex problem-solving: • To solve different kinds of problems in familiar and non-familiar contexts and apply the learning to real-life situations.
PO2	Critical thinking: • Apply analytic thought to a body of knowledge, including the analysis and evaluation of policies, and practices, as well as evidence, arguments, claims, beliefs, and the reliability and relevance of evidence. • Identify relevant assumptions or implications and formulate coherent arguments. • Identify logical flaws and holes in the arguments of others. • Analyze and synthesize data from a variety of sources and draw valid conclusions and support them with evidence and examples.
PO3	Creativity: • Create, perform, or think in different and diverse ways about the same objects or scenarios. • Deal with problems and situations that do not have simple solutions. □ Innovate and perform tasks in a better manner. • View a problem or a situation from multiple perspectives. • Think 'out of the box' and generate solutions to complex problems in unfamiliar contexts. • Adopt innovative, imaginative, lateral thinking, interpersonal skills and emotional intelligence.
PO4	Communication Skills: • Listen carefully, read texts and research papers analytically and present complex information in a clear and concise manner to different groups / audiences. • Express thoughts and ideas effectively in writing and orally and communicate with others using appropriate media. • Confidently share views and express herself / himself. • Construct logical arguments using correct technical language related to a field of learning, work/vocation, or an area of professional practice, and convey ideas, thoughts, and arguments using language that is respectful and sensitive to gender and other minority groups.
PO5	Analytical reasoning/thinking: • Evaluate the reliability and relevance of evidence. • Identify logical flaws in the arguments of others. • Analyze and synthesize data from a variety of sources-draw valid conclusions and support them with evidence and examples, and address opposing viewpoints.

PO6	Research-related skills: • A keen sense of observation, inquiry, and capability for asking relevant/ appropriate questions. • The ability to problematize, synthesize, and articulate issues and design research proposals. • The ability to define problems, formulate appropriate and relevant research questions, formulate hypotheses, test hypotheses using quantitative and qualitative data, establish hypotheses, make inferences based on the analysis and interpretation of data, and predict cause-and-effect relationships. • The capacity to develop appropriate methodology and tools for data collection • The appropriate use of statistical and other analytical tools and techniques. • The ability to plan, execute and report the results of an experiment or investigation, the ability to acquire the understanding of basic research ethics and skills in practicing/doing ethics in the field/ in personal research work, regardless of the funding authority or field of study.
PO7	Coordinating/collaborating with others: • Work effectively and respectfully with diverse teams. • Facilitate cooperative or coordinated effort on the part of a group. • Act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
PO8	Leadership readiness/qualities: • Mapping out the tasks of a team or an organization and setting direction. • Formulating an inspiring vision and building a team that can help achieve the vision, motivating and inspiring team members to engage with that vision. • Using management skills to guide people to the right destination.
PO9	Learning how to learn skills: • Acquire new knowledge and skills, including 'learning how to learn skills, that are necessary for pursuing learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social, and cultural objectives, and adapting to changing trades and demands of the workplace, including adapting to the changes in work processes in the context of the fourth industrial revolution, through knowledge / skill development / re-skilling. • Work independently; identify appropriate resources required for further learning. • Acquire organizational skills and time management to set self-defined goals and targets with timelines. • Inculcate a healthy attitude to be a lifelong learner.
PO10	Digital and technological skills: • Use ICT in a variety of learning and work situations. • Access, evaluate, and use a variety of relevant information sources, and use appropriate software for analysis of data.

PO11	Multicultural competence and inclusive spirit: • The acquisition of knowledge of the values and beliefs of multiple cultures and a global perspective to honour diversity. • Capability to effectively engage in a multicultural group/society and interact respectfully with diverse groups. • Capability to lead a diverse team to accomplish common group tasks and goals. • Gender sensitivity and adopting a gender-neutral approach, as also empathy for the less advantaged and the differently-abled including those with learning disabilities.
PO12	Value inculcation: • Embrace and practice constitutional, humanistic, ethical, and moral values in life, including universal human values of truth, righteous conduct, peace, love, nonviolence, scientific temper, citizenship values. • Practice responsible global citizenship required for responding to contemporary global challenges, enabling learners to become aware of and understand global issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies. • Formulate a position/argument about an ethical issue from multiple perspectives. • Identify ethical issues related to work, and follow ethical practices, including avoiding unethical behavior such as fabrication, falsification or misrepresentation of data, or committing plagiarism, and adhering to intellectual property rights. • Recognize environmental and sustainability issues and participate in actions to promote sustainable development. • Adopt an objective, unbiased, and truthful actions in all aspects of work. • Instill integrity and identify ethical issues related to work, and follow ethical practices.
PO13	Autonomy, responsibility, and accountability: • Apply knowledge, understanding, and/or skills with an appropriate degree of independence relevant to the level of the qualification. • Work independently, identify appropriate resources required for a project, and manage a project through to completion. • Exercise responsibility and demonstrate accountability in applying knowledge and/or skills in work and/or learning contexts appropriate for the level of the qualification, including ensuring safety and security at workplaces.
PO14	Environmental awareness and action: • Ability to apply the knowledge, skills, attitudes, and values required to take appropriate actions for. • Mitigating the effects of environmental degradation, climate change, and pollution. • Effective waste management, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living.

PO15	Community engagement and service: • To participate in community-engaged services/ activities for promoting the wellbeing of society.
PO16	Empathy: • To identify with or understand the perspective, experiences, or points of view of another individual or group, and to identify and understand other people's emotions.
PSO1	Technical Competency Graduates will demonstrate the ability to apply knowledge of computing and mathematics, including mastery of various programming languages, development tools, and environments.
PSO2	Problem-Solving Skills Graduates will be able to identify, formulate and solve computing problems using modern techniques and innovative skills.
PSO3	PSO3: Communication and Teamwork Graduates will communicate effectively with a range of audiences and contribute as productive members or leaders of multidisciplinary teams.
PSO4	Professional Ethics and Social Responsibility Graduates will understand the impact of computing solutions in a global, economical, environmental, societal context, and adhere to professional ethics and responsibilities.

Curriculum Structure

(Flexible Credit System)

Minimum Credit Requirements to Award Degree Under Each Category

S.No.	Course Category and Category Code		Minimum Credit Requirement					
			3 Year Undergraduate		4 Year Undergraduate (Hons.)		4 Year Undergraduate (Hons.) with Research	
			Credits	(%)	Credits	(%)	Credits	(%)
1	Programme Core	PC	46	38.33	52	32.50	58	36.25
2	Programme Elective	PE	31	25.84	53	33.13	39	24.38
3	Multi-Disciplinary Courses	MDC	2	1.66	2	1.25	2	1.25
4	Ability Enhancement Courses	AEC	8	6.67	8	5.00	8	5.00
5	Skill Enhancement Courses	SEC	29	24.17	41	25.62	49	30.62
6	Value Added Courses	VAC	4	3.33	4	2.50	4	2.50
	Total		**120**	**100**	**160**	**100**	**160**	**100**

Semester	Programme Core	Programme Elective	Multi-Disciplinary Courses	Ability Enhancement Courses	Skill Enhancement Courses	Value Added Courses	Total
I	10	0	0	2	5	2	19
II	11	0	2	0	7	1	21
III	11	4	0	2	5	0	22
IV	11	4	0	2	5	0	22
V	0	12	0	2	3	0	17
VI	3	11	0	0	4	1	19
BCA (Honors)							
VII	6	10	0	0	4	0	20
VIII	0	12	0	0	8	0	20
BCA (Honors with Research)							
VII	12	8	0	0	0	0	20
VIII	0	0	0	0	20	0	20

Choice of Specialization

B.C.A. (Honors) with
Artificial Intelligence and Machine Learning (Four Years)
or
B.C.A. (Honors) with Data Science (Four Years)
or
B.C.A. (Honors) with Research (Four Years),
based on their chosen specialization

4 Year PG programme:

Semester I and II: Common Structure for 'Data Science' and 'AI & ML' Specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - I									
MATH1401	PC	100	Mathematics Foundation to Computer Science-I	3	0	0	0	0	3
CSCI1411	PC	100	Basic Principles of Information Technology	3	0	0	0	0	3
CSCI1421	PC	100	Digital Logic Circuits	3	0	0	0	0	3
CSCI1441	PC	100	Office Automation Tools	0	0	2	0	0	1
CSCI1401	SEC	100	C Programming	3	0	0	0	0	3
CSCI1431	SEC	100	C Programming Laboratory	0	0	4	0	0	2
LANG1242	AEC	100	Communicative English - I	0	0	4	0	0	2
ENVS1071	VAC	100	Environmental Science and sustainability	2	0	0	0	0	2
			Total Credits						**19**

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - II									
MATH1411	PC	100	Mathematics Foundation to Computer Science-II	3	0	0	0	0	3
CSCI1451	PC	100	Operating Systems	3	0	0	0	0	3
CSCI1471	PC	100	Database Management Systems	3	0	0	0	0	3
CSCI1491	PC	100	Database Management System Laboratory	0	0	4	0	0	2
CSCI1461	SEC	100	Object Oriented Programming with C++	3	0	0	0	0	3
CSCI1481	SEC	100	Object Oriented Programming with C++ Laboratory	0	0	2	0	0	1
CSCI1501	SEC	100	Web Technologies Laboratory	0	0	4	0	0	2
GCGC1001	SEC	100	Aptitude and Self-Management Skills	0	0	2	0	0	1
IENT1051	MDC	100	Fundamentals of Entrepreneurship	2	0	0	0	0	2
POLS1051	VAC	100	The Indian Constitution	1	0	0	0	0	1
			Total Credits						**21**

Artificial Intelligence and Machine Learning - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - III									
MATH2631	PC	200	Probability and Statistics	3	0	0	0	0	3
CSCI2401	PC	200	Object Oriented Software Engineering	3	0	0	0	0	3
CSCI2381	PC	200	Data Structures using C++	3	0	0	0	0	3
CSCI2451	PC	200	Data Structures using C++ Laboratory	0	0	4	0	0	2
CSCI2391	SEC	200	Python Programming	3	0	0	0	0	3
CSCI2461	SEC	200	Python Programming Laboratory	0	0	2	0	0	1
GCGC1011	SEC	200	Integrated Aptitude and Ethical Communications	0	0	2	0	0	1
LANG1042	AEC	200	Academic Writing	2	0	0	0	0	2
CSCI2471	PE	200	Basics of Data Analytics using Spreadsheet Laboratory	0	0	2	0	0	1
Choose any one of the following courses									
CSCI2411	PE	200	Formal Languages and Automata Theory	3	0	0	0	0	3
CSCI2421	PE	200	E-Commerce	3	0	0	0	0	3
CSCI2431	PE	200	Digital Marketing	3	0	0	0	0	3
CSCI2441	PE	200	Computer Organization	3	0	0	0	0	3
			Total Credits						**22**

Data Science - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - III									
MATH2631	PC	200	Probability and Statistics	3	0	0	0	0	3
CSCI2401	PC	200	Object Oriented Software Engineering	3	0	0	0	0	3
CSCI2381	PC	200	Data Structures using C++	3	0	0	0	0	3
CSCI2451	PC	200	Data Structures using C++ Laboratory	0	0	4	0	0	2
CSCI2391	SEC	200	Python Programming	3	0	0	0	0	3
CSCI2461	SEC	200	Python Programming Laboratory	0	0	2	0	0	1
GCGC1011	SEC	200	Integrated Aptitude and Ethical Communications	0	0	2	0	0	1
LANG1042	AEC	200	Academic Writing	2	0	0	0	0	2
CSCI2481	PE	200	Feature Engineering Laboratory	0	0	2	0	0	1
Choose any one of the following courses									
CSCI2411	PE	200	Formal Languages and Automata Theory	3	0	0	0	0	3
CSCI2421	PE	200	E-Commerce	3	0	0	0	0	3
CSCI2431	PE	200	Digital Marketing	3	0	0	0	0	3
CSCI2441	PE	200	Computer Organization	3	0	0	0	0	3
			Total Credits						**21**

Artificial Intelligence and Machine Learning - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - IV									
CSCI2491	PC	200	Introduction to Data Communication and Networks	3	0	0	0	0	3
CSCI2521	PC	200	Artificial Intelligence	3	0	0	0	0	3
CSCI2581	PC	200	Artificial Intelligence Laboratory	0	0	2	0	0	1
CSCI2511	PC	200	Design and Analysis of Algorithm	4	0	0	0	0	4
CSCI2501	SEC	200	Java Programming	3	0	0	0	0	3
CSCI2571	SEC	200	Java Programming Laboratory	0	0	2	0	0	1
GCGC1021	SEC	200	Applied Communication and Quantitative Skills	0	0	2	0	0	1
LANG1252	AEC	200	Communicative English - II	0	0	4	0	0	2
CSCI2601	PE	200	Linux and Shell Programming Laboratory	0	0	2	0	0	1
Choose any one of the following courses									
CSCI2531	PE	200	Introduction to Cryptography	3	0	0	0	0	3
CSCI2541	PE	200	Compiler Design	3	0	0	0	0	3
CSCI2551	PE	200	Embedded Systems	3	0	0	0	0	3
CSCI2561	PE	200	Introduction to Cloud Computing	3	0	0	0	0	3
			Total Credits						**22**

Data Science - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - IV									
CSCI2491	PC	200	Introduction to Data Communication and Networks	3	0	0	0	0	3
CSCI2521	PC	200	Artificial Intelligence	3	0	0	0	0	3
CSCI2581	PC	200	Artificial Intelligence Laboratory	0	0	2	0	0	1
CSCI2511	PC	200	Design and Analysis of Algorithm	4	0	0	0	0	4
CSCI2501	SEC	200	Java Programming	3	0	0	0	0	3
CSCI2571	SEC	200	Java Programming Laboratory	0	0	2	0	0	1
GCGC1021	SEC	200	Applied Communication and Quantitative Skills	0	0	2	0	0	1
LANG1252	AEC	200	Communicative English - II	0	0	4	0	0	2
CSCI2591	PE	200	Data Visualization Laboratory	0	0	2	0	0	1
Choose any one of the following courses									
CSCI2531	PE	200	Introduction to Cryptography	3	0	0	0	0	3
CSCI2541	PE	200	Compiler Design	3	0	0	0	0	3
CSCI2551	PE	200	Embedded Systems	3	0	0	0	0	3
CSCI2561	PE	200	Introduction to Cloud Computing	3	0	0	0	0	3
			Total Credits						**22**

Artificial Intelligence and Machine Learning - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - V									
CSCI3361	PE	300	Data Mining and Warehousing	3	0	0	0	0	3
CSCI3451	PE	300	Data Mining and Warehousing Laboratory	0	0	2	0	0	1
CSCI3371	PE	300	Machine Learning	3	0	0	0	0	3
CSCI3461	PE	300	Machine Learning Laboratory	0	0	2	0	0	1
CSCI3441	PE	300	R Programming Laboratory	0	0	2	0	0	1
LANG1201	AEC	300	Critical Thinking	2	0	0	0	0	2
GCGC1031	SEC	300	Placement Preparation and Professional Readiness	0	0	2	0	0	1
Choose any one of the following courses									
CSCI3421	SEC	300	Internship	0	0	4	0	0	2
CSCI3471	SEC	300	Capstone Project	0	0	4	0	0	2
Choose any one of the following courses									
CSCI3381	PE	300	Cyber Security	3	0	0	0	0	3
CSCI3391	PE	300	Neural Networks	3	0	0	0	0	3
CSCI3401	PE	300	Cloud Security	3	0	0	0	0	3
CSCI3411	PE	300	Software Testing Methodologies	3	0	0	0	0	3
			Total Credits						**17**

Data Science - specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - V									
CSCI3361	PE	300	Data Mining and Warehousing	3	0	0	0	0	3
CSCI3451	PE	300	Data Mining and Warehousing Laboratory	0	0	2	0	0	1
CSCI3371	PE	300	Machine Learning	3	0	0	0	0	3
CSCI3461	PE	300	Machine Learning Laboratory	0	0	2	0	0	1
CSCI3431	PE	300	Introduction to Data Science Laboratory	0	0	2	0	0	1
LANG1201	AEC	300	Critical Thinking	2	0	0	0	0	2
GCGC1031	SEC	300	Placement Preparation and Professional Readiness	0	0	2	0	0	1
Choose any one of the following courses									
CSCI3421	SEC	300	Internship	0	0	4	0	0	2
CSCI3471	SEC	300	Capstone Project	0	0	4	0	0	2
Choose any one of the following courses									
CSCI3381	PE	300	Cyber Security	3	0	0	0	0	3
CSCI3391	PE	300	Neural Networks	3	0	0	0	0	3
CSCI3401	PE	300	Cloud Security	3	0	0	0	0	3
CSCI3411	PE	300	Software Testing Methodologies	3	0	0	0	0	3
			Total Credits						**17**

Artificial Intelligence and Machine Learning – specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VI									
CSCI3591	PC	300	Generative AI	2	0	0	0	0	2
CSCI3601	PC	300	Generative AI Laboratory	0	0	2	0	0	1
CSCI3501	PE	300	Foundations of Natural Language Processing	3	0	0	0	0	3
CSCI3571	PE	300	Foundations of Natural Language Processing Laboratory	0	0	2	0	0	1
CSCI3511	PE	300	Deep Learning	3	0	0	0	0	3
CSCI3581	PE	300	Deep Learning Laboratory	0	0	2	0	0	1
PHPY1011	VAC	300	Gandhi and the Contemporary World	1	0	0	0	0	1
CSCI3481	SEC	300	Major Project*	0	0	0	0	8	4
Choose any one of the following courses									
CSCI3521	PE	300	Blockchain Technology	3	0	0	0	0	3
CSCI3531	PE	300	Network Security	3	0	0	0	0	3
CSCI3541	PE	300	Internet of Things	3	0	0	0	0	3
CSCI3551	PE	300	Software Project Management	3	0	0	0	0	3
			Total Credits						**19**

* Initiated in V Semester

Data Science – specialization

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VI									
CSCI3591	PC	300	Generative AI	2	0	0	0	0	2
CSCI3601	PC	300	Generative AI Laboratory	0	0	2	0	0	1
CSCI3491	PE	300	Big Data Analytics	3	0	0	0	0	3
CSCI3561	PE	300	Big Data Analytics Laboratory	0	0	2	0	0	1
CSCI3511	PE	300	Deep Learning	3	0	0	0	0	3
CSCI3581	PE	300	Deep Learning Laboratory	0	0	2	0	0	1
PHPY1011	VAC	300	Gandhi and the Contemporary World	1	0	0	0	0	1
CSCI3481	SEC	300	Major Project*	0	0	0	0	8	4
Choose any one of the following courses									
CSCI3521	PE	300	Blockchain Technology	3	0	0	0	0	3
CSCI3531	PE	300	Network Security	3	0	0	0	0	3
CSCI3541	PE	300	Internet of Things	3	0	0	0	0	3
CSCI3551	PE	300	Software Project Management	3	0	0	0	0	3
			Total Credits						**19**

* Initiated in V Semester

Artificial Intelligence and Machine Learning – specialization (Honors)

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VII									
CSCI4111	PC	400	Social Network Analysis	3	0	0	0	0	3
CSCI4131	PC	400	Evolutionary Algorithms	3	0	0	0	0	3
CSCI4211	PE	400	Edge AI and TinyML	3	0	0	0	0	3
CSCI4221	PE	400	Edge AI and TinyML Laboratory	0	0	4	0	0	2
CSCI4161	PE	400	Digital Image Processing	3	0	0	0	0	3
CSCI4191	PE	400	Digital Image Processing Laboratory	0	0	4	0	0	2
CSCI4201	SEC	400	Summer Internship	0	0	0	0	8	4
			Total Credits						**20**

Data Science – specialization (Honors)

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VII									
CSCI4101	PC	400	Advanced Statistical methods for Data Science	3	0	0	0	0	3
CSCI4121	PC	400	Prompt Engineering	3	0	0	0	0	3
CSCI4141	PE	400	Applied Natural Language Processing	3	0	0	0	0	3
CSCI4171	PE	400	Applied Natural Language Processing Laboratory	0	0	4	0	0	2
CSCI4151	PE	400	Business Intelligence and Analytics	3	0	0	0	0	3
CSCI4181	PE	400	Business Intelligence and Analytics Laboratory	0	0	4	0	0	2
CSCI4201	SEC	400	Summer Internship II	0	0	0	0	8	4
			Total Credits						**20**

Artificial Intelligence and Machine Learning – specialization (Honors)

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VIII									
CSCI4241	PE	400	Large Language Models	3	0	0	0	0	3
CSCI4301	PE	400	Large Language Models Laboratory	0	0	4	0	0	2
CSCI4261	PE	400	Response and Explainable AI	3	0	0	0	0	3
CSCI4321	PE	400	Response and Explainable AI Laboratory	0	0	4	0	0	2
CSCI4281	PE	400	Security Aspects of ML	2	0	0	0	0	2
CSCI4331	SEC	400	Dissertation work*	0	0	0	0	16	8
			Total Credits						**20**

* Initiated in VII Semester

Data Science – specialization (Honors)

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VIII									
CSCI4251	PE	400	R Programming	3	0	0	0	0	3
CSCI4291	PE	400	R Programming Laboratory	0	0	4	0	0	2
CSCI4231	PE	400	Time Series Analysis	3	0	0	0	0	3
CSCI4311	PE	400	Time Series Analysis Laboratory	0	0	4	0	0	2
CSCI4271	PE	400	Data Security and Privacy	2	0	0	0	0	2
CSCI4331	SEC	400	Dissertation work*	0	0	0	0	16	8
			Total Credits						**20**

* Initiated in VII Semester

Honors with Research

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VII									
CSCI4341	PC	400	Advanced Data Analysis Tools	3	0	0	0	0	3
CSCI4361	PC	400	Advanced Data Analysis Tools Laboratory	0	0	2	0	0	1
CSCI4351	PC	400	Research Methodology	2	2	0	0	0	4
CSCI4371	PC	400	Research Internship Report and Viva –Voce	0	0	0	0	8	4
CSCIXXXX	PE	400	Professional Elective – IX	4	0	0	0	0	4
CSCIXXXX	PE	400	Professional Elective – X	4	0	0	0	0	4
			Total Credits						**20**

Course Code	Category	Level	Course Title	L	T	P	S	J	C
Semester - VIII									
CSCI4381	SEC	400	Dissertation (For Research Track)*	0	0	0	0	40	20
			Total Credits						**20**

*The Dissertation work will start from the beginning of fourth year of BCA (Honours with Research) Programme

GITAM School of Science

GITAM (Deemed to be University)

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