Detailed Program

Bachelor of Computer Applications

(BCA)

Semester-VII

(2024-2028)

DOC202406220010

RNB GLOBAL UNIVERSITY

Educating stars for tomorrow

RNB GLOBAL UNIVERSITY

RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).** Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for BCA Program for (July-December) Odd Semester, 2027 along with examination pattern is as follows:

Course Scheme

Semester –VII

S. No.	Course Code	Course Category	Course Name	L	T	P	Credits
1.	BCAC14400	DSC 20	Internet of Things (IOT)	3	1	0	4
2.		DSE 5 / GE 5	One from the Pool of DSE Courses / One from the pool of General electives	3	1	0	4
3.		DSE 6 / GE 6	One from the Pool of DSE Courses / One from the pool of General electives	3	1	0	4
4.		DSE	One from the Pool of DSE Courses	3	1	0	4
5.	DAPE99449	Research Project-1	Academic Project / Entrepreneurship	0	0	12	6
6.	WHNN99000		Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
		Total		**12**	**4**	**12**	**23**

DSC – Discipline specific Course
DSE – Discipline Specific Elective
SEC – Skill Enhancement Course
VAC – Value addition course
GE – General Elective

Discipline Specific Elective (DSE)

S.No	Course Code	Course Name	L	T	P	Credits
1.	BCAE14008	Cyber laws	3	1	0	4
2.	BCAE14009	Advance development technologies	3	1	0	4
3.	BCAE14010	Intelligent System	3	1	0	4

General Elective Courses (GE)

S.No	Course Code	Course Name	L	T	P	Credits
1.	GEC066002	E-Commerce	4	0	0	4
2.	GEC066005	Research Problem, Interpretation and Report Writing	4	0	0	4

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of BCA would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

Internal Assessment

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
Mid Term	Two Mid-term Sessional of 15 marks each (15+15)	30
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	15
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of BCA would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

Internal Assessment

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	45
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS AND HUMAN VALUES & SOCIAL SERVICE/NCC/NSS

1. The evaluation of Workshops & Seminar and Human Values & Social Service/NCC/NSS will be completed from Semester I – Semester VI. It will be evaluated internally by the various Forums & Schools Concerned. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs/Forums with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of each Semester

1. Vision

To create an environment where a holistic education is given in order to ignite an inquisitive mind, inculcate the qualities of excellence, perceive the intricacies of research, seek out obstacles, overcome them, and carve out a niche for oneself.

2. Mission

- Enabling students to maximize their potential and use their professional standards through ethics and education to raise their level of competence and become change agents.
- Fostering a scholarly culture that fosters the phenomenon of giving back to society via research and creative endeavours.
- To integrate partnerships that enhance knowledge in order to create a dynamic intellectual capital.
- To employ emerging technology to create an inclusive learning environment that is integrated with an improved educational process.
- To create a teaching-learning atmosphere that fosters resilience, sensitivity, and critical thinking, ultimately leading to the development of a strong personality.

3. Programme Educational Objectives (PEOs)

PEO1: To facilitate in development of basic fundamentals of Computer Applications that fit as a perfect foundation towards a beginning a professional career in industry.

PEO2: To develop programming skills of students by using fundamental knowledge of computer science

PEO3: To apply new designs and solutions to complex real-life problems using technologies.

PEO4: To play a creative role during professional life through turning problems to opportunities.

4. Program Outcome (POs)

PO1: **Technical understanding:** Solve complicated problems using mathematics, physics, technical foundations, and a specialization in technology.

PO2: **Problem analysis:** Identify, formulate, analyze research materials, and analyse complex engineering problems using foundational principles of mathematics, natural sciences, and sciences to reach justifiable conclusions.

PO3: **Application of modern technologies:** Create, select, and apply appropriate approaches, tools, and advanced engineering and IT tools, such as predictions and modelling, to technically challenging processes while taking into account the constraints.

PO4: **Expert Principles and Cyber Systems:** The ability to use and provide expert principles and cyber systems in a global monetary environment.

PO5: **Ultimate Education:** Determine the demand for and expand the capacity to work as a Computing certified in permanent education.

PO6: **The expert and society:** Apply reasoning informed by contextual information to evaluate societal, health, safety, legal, and cultural issues, as well as the obligations that come with them, in the context of professional engineering activity.

PO7: **Environmental and sustainable development:** Display knowledge of the need for sustainable development by identifying the implications of professional technological solutions in society and the environment contexts.

PO8: **Personality and Cooperative Learning:** Ability to work as a member or manager in a variety of diverse teams.

PO9: **Ethics:** Adhere to professional ethics, duties, and automotive technology norms by adopting ethical ideas.

PO10: **Communication:** Interact well with the technical community and society at large on associated technical activities, such as being able to understand and write effective reports and design documentation, give and receive clear directions.

PO11: **Finance and project management:** Demonstrate knowledge and understanding of technical and professional principles and apply those to one's own work, as a member of the team and leader, to manage projects and in multidisciplinary domains.

PO12: **Life-long learning:** With socio-technological advancements, students will be able to engage in independent and life-long learning.

5. Program Specific Outcome (PSOs)

PSO1: Prepare for a potentially lucrative and employable profession of computer applications.

PSO2: Continue your education in Computer Science/Applications.

PSO3: Work for yourself in the Indian and worldwide software markets.

PSO4: Comply with all applicable industrial standards.

6. Course Outcomes		
Course Codes & Course Names	**After completion of these courses' students should be able to**	
BCAC14400 - Internet of Things (IOT)	**CO1:**	Understand the drivers and enablers of Industry 4.0
	CO2:	Appreciate the smartness in Smart Factories, Smart cities, smart products and smart services.
	CO3:	Able to outline the various systems used in a manufacturing plant and their role in an Industry 4.0 world.
	CO4:	Appreciate the power of Cloud Computing in a networked economy
	CO5:	Understand the opportunities, challenges brought about by Industry 4.0 and how organizations and individuals should prepare to reap the benefits
BCAE14008- Cyber Laws	**CO1:**	Understand the legal frameworks and regulations governing cyberspace
	CO2:	Identify and analyse legal issues related to information technology
	CO3:	Evaluate the ethical implications of information technology practices
	CO4:	Apply security measures to protect information systems and data.
	CO5:	Develop an understanding of the legal rights and responsibilities of individuals and organizations in cyberspace
GEC066002- E-Commerce	**CO1:**	Business Models
	CO2:	Identify and analyse Technology Infrastructure
	CO3:	Evaluate the ethical implications Security & Privacy
	CO4:	Apply Digital Marketing
	CO5:	Develop an understanding of Payment & Logistics Integration
BCAE14009 - Advance development technologies	**CO1:**	Enables scalable, on-demand computing resources and services over the internet
	CO2:	Mimics human intelligence for decision-making, automation, and predictive analytics
	CO3:	Ensures secure, transparent, and decentralized data transactions
	CO4:	Apply security measures to protect information systems and data
	CO5:	Connects physical devices for real-time data exchange and automation
GEC066005– Research Problem, Interpretation and Report Writing	**CO1:**	Define what constitutes a research problem and identify its significance in the research process.
	CO2:	Frame a hypothesis that is testable and aligns with the defined research problem
	CO3:	Recognize the limitations of various hypothesis tests and develop strategies to address them
	CO4:	Understand and be able to create the appropriate layout for a research report

	CO5:	Write and present a thesis, including text setting, footnotes, conclusions, and suggestions
DAPE99449-Academic Project	**CO1:**	Design and conduct independent research, including formulating research questions, developing hypotheses, and selecting appropriate methodologies.
	CO2:	Develop expertise in data collection, management, and analysis using advanced statistical or qualitative analysis software
	CO3:	Develop critical thinking and problem-solving abilities by identifying research gaps, synthesizing information from various sources, and developing innovative solutions or approaches to address research challenges
	CO4:	Communicate research findings effectively through written reports and oral presentations
	CO5:	Contribute to the chosen field of study by producing research that advances knowledge, addresses significant questions, or solves practical problems
BCAE14010 - Intelligent System	**CO1:**	Understand the fundamentals of Intelligent Systems, including AI and expert systems
	CO2:	Implement search techniques for problem-solving in AI.
	CO3:	Apply machine learning algorithms for real-world problem-solving.
	CO4:	Analyze fuzzy logic and neural network models for decision-making.
	CO5:	Evaluate the role of robotics and natural language processing (NLP) in Intelligent Systems.

7.CO PO Mapping

BCAC14400	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5	3	3		3		3		3		3	3	

BCAE14008	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5		3	3		3		3		3	3	3	

GEC066002	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5		2	2	3	3		3	3		3		2

BCAE14009	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5	1		3	3		3	2		2	3	3	

GEC066005	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5		3		3		3		3		3		3

BCAE14010	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5		3	3		3		3		3		3	3

DAPE99449	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5		3	3		3		3		3		3	3

8.Curriculum

Course Name: Internet of Things

Course Code: BCAC14400

Objectives

After completing this course, students will be able to: Introduce to Terminology, error, fault and failures, design for testability, objectives, principles, Purpose of testing, testing and debugging. Limitations of testing, Role of V&V in Software Evolution, Different types of Testing Techniques and Strategies. Also Discuss Flow graphs and Path Testing, Transaction Flow Testing, Data Flow Testing. Discuss about Software Testing and Regular Expression, Program Mutation Testing, Laboratory Work.

Course Outline

Unit I

IoT Foundations: Introduction to Internet of Things, An Overview Introduction – Definition and characteristics of IoT, Physical design of IoT- Things in IoT, IoT protocol, Logical design of IoT – IoT functional blocks, IoT Communication Models, Introduction to SDN, SDN for IoT, Data Handling and Analytics, Cloud Computing, Sensor-Cloud, Fog Computing, Examples of IoT based Systems: Smart Cities and Smart Homes, Connected Vehicles, Smart Grid, Industrial IoT.

Unit II

IoT Architecture and its Protocols: Basics of Networking, Communication Protocols, Sensor Networks, Machine-to-Machine Communications, Interoperability in IoT, Introduction to Arduino Programming, Integration of Sensors and Actuators with Arduino, Introduction to Python programming, Introduction to Raspberry Pi, Implementation of IoT with Raspberry Pi.

Unit III

Sensors for IoT: Sensing and actuation, types of sensors, Occupancy Sensors, Motion sensor, velocity, temperature, pressure, chemical, Gyroscopic sensor, Optical sensors, Humidity, Water Quality sensors, Sensor applications.

Unit IV

Applications of IoT in Robotics: Future farming with the Internet of things, drones for surveillance, Soft low-power robotics, Tracking sensors for underwater robotics, Disaster response, Medical services, Smart restaurant, Analysis of IoT applications and Sensors, Space robotics for science and space exploration, Satellite based Internetworking, Tele operators, Space component systems like rover mobility, locomotion and guidance

Suggested Readings:

1. Lewin A.R.W. Edwards, “Open source robotics and process control cookbook”, Elsevier Publications, 2005.
2. Francis DaCosta, Rethinking the Internet of Things: A Scalable Approach to Connecting Everything, 1st Edition, Apress Publications, 2013.
3. Wimer Hazenberg, Menno Huisman and Sara Cordoba Rubino, Meta Products: Building the Internet of Things, BIS publishers, 2012.
4. Pethuru Raj and Anupama C. Raman, The Internet of Things: Enabling Technologies, Platforms, and Use Cases", CRC Press, 2017.
5. Arshdeep Bahga and Vijay Madisetti Internet of Things: A Hands-on Approach", Universities Press, 2014.

Course Name: Cyber Laws

Code: BCAE14008

Objectives

- The objective of this course is to provide students with an understanding of cyber laws and their implications in the field of informatics. The course aims to develop students' knowledge of legal frameworks, ethical considerations, and security measures related to information technology.

Course Outline

Unit I
Introduction to Informatics Cyber laws Overview of Cyber laws and their significance, Types of Cybercrimes and legal implications, Jurisdiction and challenges in Cyber law enforcement.

Unit II
Cyber Security and Data Privacy Cyber security threats and countermeasures, Data protection laws and regulations, Cybersecurity policies and practices.

Unit III
Legal Framework for E-commerce and Intellectual Property Laws related to e-commerce and electronic transactions, Intellectual Property laws and their application in the digital environment.

Unit IV
Privacy and Data Protection Laws Privacy laws and regulations, Data breach notification and handling, GDPR and other global data protection laws.

Unit V

Cyber Crime Investigation and Digital Forensics Digital evidence and forensic techniques, Cybercrime investigation process, Role of digital forensics in legal proceedings.

Suggested Readings:

1. "Cyber Law: Legal and Practical Considerations for Computer, E-commerce, and Intellectual Property" by Brett J. Trout.
2. "Cyberlaw: Management and Entrepreneurship" by Patricia L. Bellia, Paul Schiff Berman, and David G. Post.

Course Name: E-Commerce

Course Code: GEC066002

Objectives

- This course introduces the concepts, vocabulary, and procedures associated with E-Commerce and the Internet. The student gains an overview of all aspects of E-Commerce. Topics include development of the Internet and E-Commerce, options available for doing business on the Internet, features of Web sites and the tools used to build an E-Commerce web site, marketing issues, payment options, security issues, and customer service.

- To enable the student to become familiar with the mechanism for conducting business transactions through electronic means.

Course Outline

Unit I: Introduction

Meaning, concepts, nature, advantages, disadvantages and reasons for transacting online, types of E-Commerce, E-Commerce business models (introduction, key elements of business model and categorizing major E-commerce business models), forces behind e-commerce.

Technology used in E-commerce: The dynamics of world wide web and internet(meaning, evolution and features) ; Designing, building and launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs. in-house development of a website)

Unit II: Security and Encryption

Need and concepts, the e-commerce security environment: (dimension, definition and scope of e-security), security threats in the E-commerce environment (security intrusions and breaches, attacking methods like hacking, sniffing, cyber-vandalism etc.), technology solutions (Encryption, security channels of communication, protecting networks and protecting servers and clients).

Unit III: IT Act 2000 and Cyber Crimes

IT Act 2000: Definitions, Digital signature, Electronic governance, Attribution, acknowledgement and dispatch of electronic records, Regulation of certifying authorities,

Digital signatures certificates, Duties of subscribers, Penalties and adjudication, Appellate Tribunal, Offences and Cyber-crimes

Unit IV: E-payment System

Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money), digital signatures (procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payments.

Unit V: On-line Business Transactions

Meaning, purpose, advantages and disadvantage of transacting online, E-commerce application in various payment of utility bills, online application in various industries like {banking, insurance, marketing, e-tailing (popularity, benefits, problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment} Online shopping (Amazon, snapdeal, alibaba, flipkart, etc.)

Unit VI: Website designing

Introduction to HTML; tags and attributes: Text Formatting, Fonts, Hypertext Links, Tables, Images, Lists, Forms, Frames, Cascading Style Sheets.

Suggested Readings

1. Kenneth C. Laudon and Carlo Guercio Traver, E-Commerce, Pearson Education.
2. David Whiteley, E-commerce: Strategy, Technology and Applications, McGraw Hill Education.
3. Bharat Bhaskar, Electronic Commerce: Framework, Technology and Application, 4thEd.,McGraw Hill Education.
4. PT Joseph, E-Commerce: An Indian Perspective, PHI Learning.
5. KK Bajaj and Debjani Nag, E-commerce, McGraw Hill Education.
6. TN Chhabra, E-Commerce, Dhanpat Rai & Co.
7. Sushila Madan, E-Commerce, Taxmann.
8. TN Chhabra, Hem Chand Jain, and Aruna Jain, An Introduction to HTML, Dhanpat Rai & Co.

Course Name: Advance development technologies

Course Code: BCAE14009

Objectives

- To use I/O redirection, pipes, quoting, and filename expansion mechanisms.
- To create structured shell program that accept and use positional parameters and exported variables.
- To use shell flow control and conditional branching constructs while, for, case, if, etc

Course Outline

Unit-I

Internet of Things (IoT) – Definition of IoT, History of IoT, IoT vs. similar concepts, Application/Segment overview, Technology overview

Unit-II

Big Data Analytics: Concepts, examples of big data analytics, benefits of big data analytics, Technologies, and Applications, requirements for being successful with big data analytics

Unit-III

Cloud Computing – Introduction, Why cloud services are popular, advantages, Characteristics, Service models, Deployment of cloud services, Potential privacy risks

Unit-IV

Cyber Security – Introduction, risks, Malicious code, Hacker, attacker or intruder, Cyber security

Principles, Information Security (IS) within Lifecycle Management, Risks & Vulnerabilities, Incident

Response, Future Implications & Evolving Technologies

Unit-V

Wearable Technologies – Introduction, Applications of Wearable Technology, Challenges to Wearable Technology, various Wearable devices.

Reference Books:

1. Computer Today, A. Ravichandran, Khanna Publishing House
2. Internet of Things, Jeeva Jose, Khanna Publishing House
3. Big Data and Hadoop, V.K. Jain, Khanna Publishing House
4. Data Sciences and Analytics, V.K. Jain, Khanna Publishing House

Course Name: Research Problem, Interpretation and Report Writing

Course Code: GEC066005

Objective:

- The Course based on Waves and Signals and it covers following topics: Basic Knowledge of wireless communications, Elementary Knowledge on Wireless Transmission, Elementary Knowledge on Medium Access Control, Elementary Knowledge on Telecommunications Systems, Mobile Internet, Implementing WAP Services: WML, Implementing WAP (Wireless Application Protocol) Services.

Course Outline

Unit I- Defining the Research Problem

What is a Research Problem? Selecting the Problem, Necessity of Defining the Problem

Technique Involved in Defining a Problem, Framing of Hypothesis

Unit II- Testing of Hypotheses

What is a Hypothesis? Basic Concepts Concerning Testing of Hypotheses, Procedure for Hypothesis Testing, Flow Diagram for Hypothesis Testing, Measuring the Power of a Hypothesis Test, Tests of Hypotheses, Important Parametric Tests, Limitations of the Tests of Hypotheses, Quantitative methods

Unit III- Interpretation

Meaning of Interpretation, Technique of Interpretation, Precaution in Interpretation

Unit IV- Report Writing

Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation, Mechanics of Writing a Research Report, Precautions for Writing Research Reports, Presentation of Thesis; Preliminaries, The text; Setting of the text, Style of text, The Footnote, Conclusions and Suggestions, Summary, The end matter

Unit V- Computer applications

Introduction, Computer Applications, Computers and Researcher, Digital materials for research, Collection of data from inter net, Concept of Public domain, Use of material available on internet

Unit VI- Style sheet

Style of the Text, Words, spellings, usages, Non-English words, phrases, including Indian words, Punctuation, A full stop (.), A colon (:), A semicolon (;), A comma (,), Quotation marks (`` ..''), Round brackets ( ), Square brackets [ ], Dash (—), Hyphen (-), Conclusion

Course Name: Intelligent System

Course Code: BCAE14010

Unit I

Language Processing: Computational Phonology: Issues, Phonological rules, Mapping text to phones, Prosody in TTS, Probabilistic models of pronunciation and Spelling, N-Grams.

Unit II

Syntax: Word classes and POS tagging, CFG for English, Lexicalized and Probabilistic Parsing. Semantics: Semantic representation, Semantic and Lexical analysis and Word sense disambiguation, IR.

Unit III

Pragmatics: Discourse, Dialogue agents, Natural Language Generation and Machine translation. Machine Learning.

Unit IV

Data Mining: Association rules, Clustering, Decision Trees. Text Mining. Synergetic techniques: Genetic algorithms and ANN techniques for machine learning. Applications to bioinformatics.

Unit V

Intelligent Interfaces: Incorporating Intelligence: Requirements, design issues. Applications Development of Intelligent interfaces for systems - Stand-alone systems like OS, Databases, Physical machines including robots. Web based applications like Tutoring systems, Web

Mining, e-shopping.

Reference Books:

1. D. Jurafsky and J. H. Martin, Speech and language Processing, Pearson Education, 2000.
2. E. Reiter and R. Dale, Building Natural Language Generation Systems, Cambridge University Press, 2000.
3. T. M. Mitchell, Machine learning, McGraw-Hill 1997.
4. J. Han and M. Kamber, Data Mining: Concepts and Techniques, Morgan Kaufmann, 2000.

9.Lesson Plans

BCAC14400– Internet of Things

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Introduction to IoT, Overview and Characteristics of IoT	C-1	Lecture
Unit-I	Physical Design of IoT – Things in IoT, IoT Protocol	C-2	Lecture
Unit-I	Logical Design of IoT – IoT Functional Blocks, IoT Communication Models	C-3	Lecture
Unit-I	Introduction to SDN, SDN for IoT	C-4	Lecture
Unit-I	Data Handling and Analytics, Cloud Computing, Sensor-Cloud, Fog Computing	C-5	Lecture
Unit-I	Examples of IoT	C-6	Lecture
Unit-I	Smart Grid	C-7	Lecture
Unit-I	Industrial IoT	C-8	Lecture
Unit-I	based Systems	C-9	Lecture
Unit-I	Smart Cities,	C-10	Lecture
Unit-I	Smart Homes,	C-11	Lecture
Unit-I	Activity	C-12	Lecture
Unit-I	Class Room Assignment	C-13	Lecture
Unit-II	Basics of Networking, Communication Protocols, Sensor Networks	C-14	Lecture
Unit-II	Machine-to-Machine Communications, Interoperability in IoT	C-15	Lecture
Unit-II	Connected Vehicles	C-16	Lecture
Unit-II	Clarification Class	C-17	Lecture
Unit-II	Introduction to Arduino Programming,	C-18	Lecture
Unit-II	Integration of Sensors and	C-19	Lecture
Unit-II	Actuators with Arduino	C-20	Lecture
Unit-II	Introduction to Python Programming,	C-21	Lecture
Unit-II	Implementation of IoT	C-22	Lecture
Unit-II	with Raspberry Pi	C-23	Lecture
Unit-II	Clarification Class	C-24	Clarification Class
Unit-II	Presentation	C-25	Presentation
Unit-II	Guest Lecture		Guest Lecture
Unit-II	Class Room Assignment	C-26	Class Room Assignment
Unit-II	Webinar	C-27	Webinar
Unit-II	Take Home Assignment		Take Home Assignment
Unit-III	Clarification Class	C-28	Clarification Class
Unit-III	Sensing and Actuation, Types of Sensors Occupancy Sensors, Motion Sensors, Velocity, Temperature, Pressure Sensors	C-29	Quiz/Activity
Unit-III	Chemical, Gyroscopic, Optical Sensors,	C-30	Class Room

	Humidity, Water Quality Sensors		Assignment
Unit-III	Sensor Applications	C-31	Lecture
Unit-III	Clarification Class	C-32	Lecture
Unit-III	Presentation	C-33	Lecture
Unit-III	Class Room Assignment	C-34	Lecture
Unit-III	Seminar	C-35	Lecture
Unit-III	Activity	C-36	Lecture
Unit-III	Take Home Assignment	C-37	Lecture
Unit-IV	Future Farming with IoT, Drones for Surveillance	C-38	Lecture
Unit-IV	Soft Low-Power Robotics, Tracking Sensors for Underwater Robotics	C-39	Lecture
Unit-IV	Disaster Response, Medical Services, Smart Restaurant, Analysis of IoT Applications and Sensors	C-40	Lecture
Unit-IV	Space Robotics for Science and Space Exploration	C-41	Lecture
Unit-IV	Satellite-Based Internetworking,	C-42	Lecture
Unit-IV	Clarification Class	C-43	Clarification Class
Unit-IV	Presentation	C-44	Presentation
Unit-IV	Tele Operators	C-45	Lecture
Unit-IV	Guest Lecture	C-46	Guest Lecture
Unit-IV	Class Room assignment	C-47	Class Room Assignment
Unit-IV	Webinar	C-48	Webinar
Unit-IV	Seminar	C-49	Take Home Assignment
Unit-IV	Activity	C-50	Activity
Unit-IV	Take Home Assignment	C-51	Take Home Assignment
Unit-IV	Quality Standards, ISO 9000 Series Standards	C-52	Lecture
Unit-IV	Quality Process Implementation Issues	C-53	Lecture
Unit-IV	Quality Process Implementation Issues	C-54	Lecture
Unit-IV	Quality Process Implementation Issues	C-55	Lecture
Unit-IV	Clarification Class	C-56	Clarification Class
Unit-IV	Presentation	C-57	Presentation
	Class Room assignment	C-58	Class Room Assignment
	Seminar	C-59	Seminar
	Activity	C-60	Quiz/Acitivity

BCAE14008– Cyber Laws

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Introduction to Informatics Types of,	C-1	Lecture
Unit-I	Overview of Cyber laws and	C-2	Lecture
Unit-I	Cyber laws their significance,	C-3	Lecture
Unit-I	Cybercrimes and legal implications	C-4	Lecture
Unit-I	Take Home Assignment-1	C-5,6	Lecture
Unit-I	Jurisdiction	C-7,8	Lecture
Unit-I	challenges in Cyber law enforcement	C-9,10	Lecture
Unit-I	challenges in Cyber law enforcement	C-11,12	Lecture
Unit-I	Clarification Class	C-13	Clarification Class
Unit-II	Cyber Security and and countermeasures, ,	C-14	Lecture
Unit-II	Data Privacy Cyber security threats	C-15,16	Lecture
Unit-II	Data Privacy Cyber security threats	C-17	Presentation
Unit-II	Technologies and Applications of Big Data	C-18	Clarification Class
Unit-II	Take Home Assignments		Take Home Assignments
Unit-II	Activity	C-19	Activity
Unit-II	Clarification Class	C-20	Lecture
Unit-II	Class Room Assignment	C- 21,22	Lecture
Unit-II	Presentation	C-23,24	Lecture
Unit-II	Take Home Assignment	C-25	Presentation
Unit-II	Cybersecurity policies and practices.	C-26,27	Lecture
Unit-III	Legal Framework for E-commerce and and, and their application in the digital environment.	C-28,29	Lecture
Unit-III	Intellectual Property Laws related to e-commerce	C-30	Webinar
Unit-III	Take Home Assignments		Take Home Assignments
Unit-III	Intellectual Property Laws related to e-commerce	C-31,32	Lecture
Unit-III	Intellectual Property Laws related to e-commerce	C-33	Clarification Class
Unit-III	Class RoomAssignment	C-34	Class Room Assignment
Unit-III	Intellectual Property laws.	C-35	Lecture
Unit-III	their application in the digital environment.	C-36	Lecture
Unit-III	their application in the digital environment.	C-37,38	Lecture
Unit-III	their application in the digital environment.	C-39	Presentation
Unit-III	Clarification Class	C-40	Lecture
Unit-IV	Privacy and and handling, and	C-41	Lecture
Unit-IV	Data Protection Laws Privacy laws and	C-42	Lecture

	regulations		
Unit-IV	Clarification Class	C-43	Clarification Class
Unit-IV	Data breach notification	C-44	Class Room Assignment
Unit-IV	Data breach notification	C-45,46	Lecture
Unit-IV	GDPR	C-47	Lecture
Unit-IV	GDPR	C-48	Guest lecture
Unit-IV	Other global data protection laws.	C-49	Class Room Assignment
Unit-IV	Clarification Class	C-50	Webinar
Unit-IV	Class Room Assignment	C-51,52	Lecture
Unit-IV	Webinar	C -53,54	Webinar
Unit-V	Cyber Crime Investigation	C-55	Activity
Unit-V	Digital Forensics Digital evidence and forensic techniques	C-56	Lecture
Unit-V	Cybercrime investigation process,	C-57	Lecture
Unit-V	Role of digital forensics in legal proceedings.	C-58	Lecture
Unit-V	Clarification Class	C-59	Class Room Assignment
Unit-V	Activity	C-60	Clarification Class

GEC066002-E Commerce

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Meaning, Concepts, Nature, Advantages, Disadvantages and Reasons for Transacting Online	C-1	Lecture
Unit-I	Types of E-Commerce	C-2	Lecture
Unit-I	E-Commerce Business Models - Introduction, Key Elements, Categorizing Major E-Commerce Models	C-3	Lecture
Unit-I	Forces Behind E-Commerce	C-4	Lecture
Unit-I	Technology Used in E-Commerce:	C-5	Lecture
Unit-I	Dynamics of World Wide Web and Internet	C-6	Lecture
Unit-I	Internet	C-7	Lecture
Unit-I	Designing, Building, and Launching E-Commerce	C-8	Lecture
Unit-I	Website (Selection of Hardware and Software)	C-9	Lecture
Unit-I	Outsourcing vs. In-House Development of a Website	C-10	Lecture
Unit-I	Outsourcing vs. In-House Development of a Website	C-11	Lecture
Unit-I	Class Room Assignment	C-12	Lecture
Unit-I	Clarification Class	C-13	Clarification Class
Unit-II	Need and Concepts of Security in E-Commerce	C-14	Class Room Assignment
Unit-II	E-Commerce Security Environment: Dimensions, Definitions, and Scope of E-Security	-	Take Home Assignments
Unit-II	Security Threats in the E-Commerce Environment (Hacking, Sniffing, Cyber-Vandalism)	C-15	Lecture
Unit-II	Technology Solutions: Encryption, Security Channels of Communication, Protecting Networks	C-16	Lecture
Unit-II	Protecting Servers and Clients in E-Commerce	C-17	Lecture
Unit-II	Clarification Class		
Unit-II	Presentation	C-18	Lecture
Unit-II	Class Room Assignment	C-19	Lecture
Unit-III	IT Act 2000: Definitions and Digital Signature	C-20	Lecture
Unit-III	Electronic Governance, Attribution, Acknowledgement and Dispatch of Electronic Records	C-21	Lecture
Unit-III	Regulation of Certifying Authorities and Digital Signature Certificates	C-22	Lecture
Unit-III	Duties of Subscribers and Penalties & Adjudication	C-23	Lecture
Unit-III	Offences and Cyber-Crimes under the IT Act 2000	C-24	Lecture
Unit-III	Clarification Class	C-25	Lecture
Unit-III	Class Room Assignment	C-26	Lecture
Unit-IV	Models and Methods of E-Payments	C-27	Lecture

Unit-IV	(Debit Card, Credit Card, Smart Cards, E-money)	C-28	Lecture
Unit-IV	Payment Gateways in E-Commerce	C-29	Presentation
Unit-IV	Digital Signatures: Procedure, Working and Legal Position	C-30	Lecture
Unit-IV	Class RoomAssignment	C-31	Class Room Assignment
Unit-IV	Online Banking, Electronic Fund Transfer	C-32	Lecture
Unit-IV	Automated Clearing House,	C-33	Lecture
Unit-IV	Automated Ledger Posting	C-34	Lecture
Unit-IV	Risks Involved in E-Payments	C-35	Lecture
Unit-IV	Clarification Class	C-36	Clarification
Unit-V	Meaning, Purpose,	C-37	Lecture
	Home Assignment	-	Home Assignment
Unit-V	Advantages, and Disadvantages of Transacting Online	C-38	Lecture
Unit-V	E-Commerce Applications	C-39	Lecture
Unit-V	E-Commerce Applications	C-40	Lecture
Unit-V	E-Commerce Applications in Utility Bills, Banking	C-41	Lecture
Unit-V	E-Commerce Applications in Utility Bills, Banking	C-42	Lecture
Unit-V	Insurance,	C-43	Lecture
Unit-V	Insurance,	C-44	Lecture
Unit-V	Marketing, E-Tailing	C-45	Lecture
Unit-V	Online Services (Financial, Travel, Career), Auctions, Online Portals, Online Learning	C-46	Lecture
Unit-V	Online Shopping Platforms (Amazon, Flipkart, Alibaba, Snapdeal)	C-47	Lecture
Unit-V	Clarification Class	C-48	Clarification Class-
	Presentation	C-49	Presentation
	Class Room Assignment	C-50	Class Room Assignment
Unit-VI	Introduction to HTML, Tags, and Attributes	C-51	Lecture
Unit-VI	Text Formatting, Fonts, Hypertext Links in HTML	C-52	Lecture
Unit-VI	Tables, Images, Lists, Forms, Frames in HTML	C-53	Lecture
Unit-VI	Cascading Style Sheets (CSS)	C-54	Lecture
Unit-VI	Class Room Assignment	C-55	Lecture
Unit-VI	Take Home Assignment	C-56	Lecture
Unit-VI	Introduction to HTML, Tags, and Attributes	C-57	Lecture
Unit-VI	Introduction to HTML, Tags, and Attributes	C-58	Lecture
Unit-VI	Text Formatting, Fonts, Hypertext Links in HTML	C-59	Lecture
Unit-VI	Clarification Class	C-60	Clarification Class

BCAE14009-Advance Development Technologies

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Introduction to IoT: Definition, History, and Overview, IoT vs. Similar Concepts	C-1	Lecture
Unit-I	IoT Application/Segment Overview	C-2	Lecture
Unit-I	Technology Overview of IoT	C-3	Lecture
Unit-I	Physical Design of IoT – Things in IoT, IoT Protocols	C-4	Lecture
Unit-I	Logical Design of IoT – IoT Functional Blocks and Communication Models	C -5,6	Lecture
Unit-I	Introduction to SDN, SDN for IoT	C -7,8	Lecture
Unit-I	Data Handling and Analytics, Cloud Computing, Sensor-Cloud, and Fog Computing	C -9,10	Lecture
Unit-I	Examples of IoT	C-11,12	Lecture
Unit-I	Smart Grid Applications in IoT	C-13	Lecture
Unit-I	Industrial IoT-based Systems	C-14	Lecture
Unit-I	Smart Cities in IoT	C-15	Lecture
Unit-I	Smart Homes in IoT	C-16	Lecture
Unit-I	Clarification Class	C-17	Clarification Class
Unit-I	Activity-1 (Group Discussion or Case Study)	C-18	Activity
Unit-I	Classroom Assignments	C-19	Classroom Assignments
Unit-II	Big Data Analytics: Concepts, Examples, and Benefits	C-20	Lecture
Unit-II	Technologies in Big Data Analytics	C -21	Lecture
Unit-II	Applications of Big Data Analytics	C-22	Lecture
Unit-II	Requirements for Successful Big Data Analytics	C-23,24	Lecture
Unit-II	Clarification Class	C-25	Lecture
Unit-II	Student Presentations on Big Data Case Studies	C-26,27	Lecture
Unit-II	Class Room Assignment	C-28	Class Room Assignment
Unit-II	Webinar-1 on Big Data Technologies	C-29	Webinar
Unit-II	Home Assignment		Home Assignment
Unit-III	Introduction to Cloud Computing and Popularity of Cloud Services	C-30	Take Home Assignments
Unit-III	Advantages and Characteristics of Cloud Computing	C-31,32	Lecture
Unit-III	Service Models in Cloud Computing (IaaS, PaaS, SaaS)	C-33	Lecture
Unit-III	Class RoomAssignment	C-34	Class Room Assignment
Unit-III	Potential Privacy Risks in Cloud Computing	C-35	Lecture
Unit-III	Potential Privacy Risks in Cloud Computing	C-36	Lecture
Unit-III	Student Presentations on Cloud Applications	C-37,38	Lecture
Unit-III	Clarification Class	C-39	Clarification Class
Unit-III	Seminar	C-40	Seminar

Unit-III	Activity	C-41	Activity
Unit-III	Take Home Assignment	C-42	Take Home Assignment
Unit-IV	Introduction to Cloud Computing and Popularity of Cloud Services	C-43	Clarification Class
Unit-IV	Introduction to Cyber Security and Risks Involved	C-44	Class Room Assignment
Unit-IV	Malicious Code, Hackers, and Cyber Attacks	C-45,46	Lecture
Unit-IV	Cyber Security Principles and Information Security in Lifecycle Management	C-47	Lecture
Unit-IV	Risks and Vulnerabilities in Cyber Security	C-48	Lecture
Unit-IV	Incident Response in Cyber Security	C-49	Lecture
Unit-IV	Future Implications of Cyber Security and	C-50, 51	Webinar
Unit-IV	Clarification Class	C-52	Clarification Class
Unit-IV	Evolving Technologies	C -53,54	Lecture
Unit-IV	Presentation	C-55	Presentation
Unit-V	Introduction to Wearable Technologies	C-56	Lecture
Unit-V	Applications of Wearable Technology	C-57	Lecture
Unit-V	Challenges in Wearable Technology	C-58	Seminar
Unit-V	Class Room Assignment	C-59	Class Room Assignment
Unit-V	Clarification Class	C-60	Clarification Class

GEC066005-Research Problem, Interpretation and Report Writing

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	What is a Research Problem?	C-1	Lecture
Unit-I	Selecting the Research Problem	C-2	Lecture
Unit-I	Necessity of Defining the Research Problem	C-3	Lecture
Unit-I	Techniques Involved in Defining a Problem	C-4	Lecture
Unit-I	Framing of Hypothesis	C-5	Lecture
Unit-I	Activity	C-6	Activity
Unit-I	Class Room Assignment	C-7	Class Room Assignment
Unit-II	What is a Hypothesis?	C-8	Lecture
Unit-II	Basic Concepts Concerning Testing of Hypotheses	C-9	Lecture
Unit-II	Procedure for Hypothesis Testing	C-10	Lecture
Unit-II	Flow Diagram for Hypothesis Testing	C-11	Lecture
Unit-II	Measuring the Power of a Hypothesis Test	C-12	Lecture
Unit-II	Tests of Hypotheses, Important Parametric Tests	C-13	Lecture
Unit-II	Limitations of the Tests of Hypotheses	C-14	Lecture
Unit-II	Quantitative Methods in Hypothesis Testing	C-15	Lecture
Unit-II	Clarification Class	C-16	Clarification Class
Unit-II	Presentation	C-17	Presentation
Unit-II	Class Room Assignment	C-18	Class Room Assignment
Unit-III	Meaning of Interpretation in Research	C-19	Lecture
Unit-III	Techniques of Interpretation	C-20	Lecture
Unit-III	Precautions in Interpretation	C-21	Activity
Unit-III	Activity	C-22	Lecture
Unit-III	Class Room Assignment	C-23	Class Room Assignment
Unit-III	Take Home Assignment	C-24	Take Home Assignment
Unit-III	Meaning of Interpretation in Research	C-25	Lecture
Unit-III	Techniques of Interpretation		Lecture
Unit-IV	Significance of Report Writing in Research	C-26	Lecture
Unit-IV	Different Steps in Writing a Report	C-27	Lecture
Unit-IV	Layout of the Research Report	C-27	Lecture
Unit-IV	Types of Research Reports	C-28	Lecture
Unit-IV	Quiz/Activity	C-29	Quiz/Activity
Unit-IV	Mechanics of Writing a Research Report	C-30	Lecture
Unit-IV	Precautions for Writing Research Reports	C-31	Lecture
Unit-IV	Presentation of Thesis: Preliminaries, Text, and Style of Text	C-32	Lecture
Unit-IV	Footnotes, Conclusions, Suggestions, Summary, and End Matter	C-33	Lecture
Unit-IV	Clarification Class	C-34	Clarification Class

Unit-IV	Presentation	C-35	Presentation
Unit-IV	Class Room Assignment	C-36	Class Room Assignment
Unit-IV	Significance of Report Writing in Research	C-37	Lecture
Unit-IV	Home Assignment	-	Home Assignment
Unit-IV	Different Steps in Writing a Report	C-38	Lecture
Unit-IV	Layout of the Research Report	C-39	Lecture
Unit-V	Introduction to Computer Applications in Research	C-40	Lecture
Unit-V	Computers and the Role of the Researcher	C-41	Lecture
Unit-V	Digital Materials for Research	C-41	Lecture
Unit-V	Collection of Data from the Internet	C-42	Lecture
Unit-V	Concept of Public Domain and Use of Material Available on the Internet	C-43	Lecture
Unit-V	Presentation	C-44	Presentation
Unit-V	Class Room Assignment	C-45	Class Room Assignment
Unit-V	Take Home Assignment	-	Take Home Assignment
Unit-V	Introduction to Computer Applications in Research	C-46	Lecture
Unit-V	Computers and the Role of the Researcher	C-47	Lecture
Unit-V	Digital Materials for Research	C-48	Lecture
	Clarification Class	C-49	Lecture
Unit-VI	Style of the Text: Words, Spellings, and Usages	C-50	Lecture
Unit-VI	Non-English Words and Phrases in Research	C-51	Lecture
Unit-VI	Punctuation Rules: Full Stop, Colon, Semicolon, Comma, and Others	C-52	Lecture
Unit-VI	Quotation Marks, Round Brackets, Square Brackets, Dashes, and Hyphens	C-52	Lecture
Unit-VI	Conclusion (Summing up the Research Writing Styles)	C-53	Lecture
Unit-VI	Activity-4 (Editing Research Text Using Style Guidelines)	C-54	Lecture
Unit-VI	Class Room Assignment-6 (Editing a Research Paper)	C-55	Lecture
Unit-VI	Take Home Assignment-3 (Prepare Research Using Proper Style)	C-56	Clarification Class
Unit-VI	Style of the Text: Words, Spellings, and Usages	C-57	Lecture
Unit-VI	Non-English Words and Phrases in Research	C-58	Lecture
Unit-VI	Punctuation Rules: Full Stop, Colon, Semicolon, Comma, and Others	C-59	Seminar
Unit-VI	Clarification Class	C-60	Clarification Class

BCAE14010 -Intelligent System

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Computational Phonology: Issues	C-1	Lecture
Unit-I	Phonological Rules	C-2	Lecture
Unit-I	Mapping Text to Phones	C-3	Lecture
Unit-I	Prosody in TTS (Text-to-Speech)	C-4	Lecture
Unit-I	Probabilistic Models of Pronunciation and Spelling	C-5	Lecture
Unit-I	N-Grams in Phonological Modelling	C-6	Lecture
Unit-I	Activity	C-7	Activity
Unit-I	Class Room Assignment	C-8	Class Room Assignment
Unit-II	Computational Phonology: Issues	C-9	Lecture
Unit-II	Word Classes and POS Tagging	C-10	Lecture
Unit-II	Context-Free Grammar (CFG) for English	C-11	Lecture
Unit-II	Lexicalized and Probabilistic Parsing	C-12	Lecture
Unit-II	Semantic Representation	C-13	Lecture
Unit-II	Semantic and Lexical Analysis	C-14	Lecture
Unit-II	Word Sense Disambiguation and Information Retrieval (IR)	C-15	Lecture
Unit-II	Home Assignment	C-16	Home Assignment
Unit-II	Word Classes and POS Tagging		Lecture
Unit-II	Class Room Assignment	C-17	Class Room Assignment
Unit-II	Clarification Class	C-18	Clarification Class
Unit-III	Word Classes and POS Tagging	C-19	Lecture
Unit-III	Context-Free Grammar (CFG) for English	C-20	Lecture
Unit-III	Discourse and Dialogue Agents	C-21	Lecture
Unit-III	Natural Language Generation (NLG)	C-22	Lecture
Unit-III	Machine Translation	C-23	Lecture
Unit-III	Introduction to Machine Learning in Language Processing	C-24	Lecture
Unit-III	Machine Learning in Language Processing	C-25	Lecture
Unit-III	Class Room Assignment		Lecture
Unit-III	Take Home Assignment	C-26	Lecture
Unit-III	Discourse and Dialogue Agents	C-27	Lecture
Unit-III	Natural Language Generation (NLG)		Lecture
Unit-III	Clarification Class	C-28	Clarification Class
Unit-III	Quiz/Activity	C-29	Quiz/Activity
Unit-III	Class Room Assignment	C-30	Class Room Assignment
Unit-IV	Clustering Algorithms	C-31	Lecture
Unit-IV	Decision Trees in Data Mining	C-32	Lecture
Unit-IV	Text Mining Techniques	C-33	Lecture
Unit-IV	Synergetic Techniques in Machine Learning	C-34	Lecture
Unit-IV	Machine Learning	C-35	Lecture

Unit-IV	Machine Learning	C-36	Lecture
Unit-IV	Machine Learning	C-37	Lecture
Unit-IV	Genetic Algorithms and Artificial Neural	C-38	Lecture
Unit-IV	Genetic Algorithms and Artificial Neural	C-39	Lecture
Unit-IV	Networks (ANN) for Machine Learning	C-40	Lecture
Unit-IV	Applications of Machine Learning in Bioinformatics	C-41	Lecture
Unit-IV	Applications of Machine Learning in Bioinformatics	C-42	Lecture
Unit-IV	Applications of Machine Learning in Bioinformatics	C-43	Clarification Class
Unit-IV	Presentation	C-44	Presentation
	Clarification Class	C-45	Clarification Class
Unit-V	Incorporating Intelligence into Systems	C-46	Guest Lecture
Unit-V	Class Room Assignment	C-47	Class Room Assignment
Unit-V	Applications of Intelligent Interfaces in Stand-alone Systems	C-48	Webinar
Unit-V	Classroom Assignment	C-49	Classroom Assignment
Unit-V	Applications in Physical Machines, including Robots	C-50	Lecture
Unit-V	Web-based Applications of Intelligent Interfaces	C-51	Lecture
Unit-V	Applications in Tutoring Systems, Web Mining, and E-shopping	C-52	Lecture
Unit-V	Home Assignment	-	Home Assignment
Unit-V	Class Room Assignment	C-53	Class Room Assignment
Unit-V	Requirements and Design	C-54	Lecture
Unit-V	Take Home Assignment	C-55	Take Home Assignment
Unit-V	Requirements and Design Issues of Intelligent Interfaces	C-56	Presentation
Unit-V	Applications of Intelligent Interfaces in Stand-alone Systems	C-57	Class Room Assignment
Unit-V	Developing Intelligent Interfaces for Operating Systems and Databases	C-58	Seminar
	Clarification Class	C-59	Clarification Class
	Quiz	C-60	Quiz

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

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