NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA, G.B. NAGAR
(AN AUTONOMOUS INSTITUTE)

Affiliated to

DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY, UTTAR PRADESH, LUCKNOW

Evaluation Scheme & Syllabus

For

Bachelor of Technology

Computer Science and Engineering (Cyber Security)

Fourth Year

(Effective from the Session: 2026-27)

NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute)

Computer Science and Engineering (Cyber Security)
Evaluation Scheme
SEMESTER –VII

S. No	Subject Codes	Subject Name	Type of Subject	Periods			Evaluation Schemes				End Semester		Total	Credit
				L	T	P	CT	TA	TOTAL	PS	TE	PE		
1	BCSCY0701	Cloud Security and Privacy	Mandatory	3	0	0	30	20	50		100		150	3
2		Departmental Elective V	Departmental Elective	3	0	0	30	20	50		100		150	3
3		Open Elective II	Open Elective	3	0	0	30	20	50		100		150	3
4		Open Elective III	Open Elective	3	0	0	30	20	50		100		150	3
5	BCSCY0751	Cloud Security and Privacy Lab	Mandatory	0	0	2				25		25	50	1
6	BCSE0759	Summer Internship Assessment	Mandatory	0	0	2				50			50	1
7	BCSE0758	Capstone Project I	Mandatory	0	0	4				50		50	100	2
8		MOOCs	*MOOCs											
		TOTAL		**12**	**0**	**8**	**120**	**80**	**200**	**125**	**400**	**75**	**800**	**16**
Summer Internship (4 weeks) shall be conducted during summer break after VI semester and will be assessed during VII semester														

PLEASE NOTE: -

Internship (3-4 weeks) shall be conducted during summer break after semester-VI and will be assessed during Semester-VII

Abbreviation Used:

L: Lecture, T: Tutorial, P: Practical, CT: Class Test, TA: Teacher Assessment, PS: Practical Sessional, TE: Theory End Semester Exam., PE: Practical End Semester Exam, CE: Core Elective, OE: Open Elective, DE: Departmental Elective, CA: Compulsory Audit, MOOCs: Massive Open Online Courses.

*** List of Recommended MOOCs (Massive Open Online Courses) for Final Year B. Tech Students (Semester-VII)**

S. No.	Subject Code	Course Name	University/ Industry Partner Name	N. of Hours	Credit
1.	BMC0139	Microsoft Office 2016	Infosys Wingspan (Infosys Springboard)	31h 54m	2.5
2.	BMC0027	Network Fundamentals	Infosys Wingspan (Infosys Springboard)	37h 57m	3
3.	BMC0114	Cyber Security Essential	NASSCOM	70h	4

List of Department Elective (if any): -

S. No.	Subject Code	Subject Name	Bucket Name	Semester
1	BCSCY0711	Security Risk Management	Cyber Security	VII
2	BCSDS0711	Business Analytics	Data Analytics	VII

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Computer Science and Engineering (Cyber Security)
Evaluation Scheme
SEMESTER –VIII

S. No	Subject Codes	Subject Name	Type of Subject	Periods			Evaluation Schemes				End Semester		Total	Credit
				L	T	P	CT	TA	TOTAL	PS	TE	PE		
1		Open Elective-IV	Open Elective	2	0	0	30	20	50		50		100	2
2	BCSE0858/ BCSE0859	Capstone Project / Industrial Internship	Mandatory	0	0	16				200		200	400	8
		MOOCs (For B.Tech. Hons. Degree)	*MOOCs											
			TOTAL	**2**	**0**	**16**	**30**	**20**	**50**	**200**	**50**	**200**	**500**	**10**

*** List of Recommended MOOCs (Massive Open Online Courses) for Final Year B. Tech Students (Semester-VIII)**

S. No.	Subject Code	Course Name	University/ Industry Partner Name	N. of Hours	Credits
1.	BMC0153	Information Security A-Z: Cyber Security Bootcamp	Infosys Wingspan (Infosys Springboard)	12h 25m	0.5
2.	BMC0154	Exploratory Data Analysis	Infosys Wingspan (Infosys Springboard)	7h 13m	0.5
3.	BMC0142	Certificate program in Prompt Engineering and ChatGPT	NASSCOM	30 h	2

Abbreviation Used:

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AICTE Guidelines in Model Curriculum:

A student will be eligible to get Under Graduate degree with Honours only, if he/she completes the additional MOOCs courses such as Infosys Springboard/NASSCOM/CISCO (as applicable) certifications, or any other online courses recommended by the Institute (Equivalent to 20 credits). During Complete B.Tech. Program Guidelines for credit calculations are as follows.

1. For 6 to 12 Hours =0.5 Credit
2. For 13 to18 =1 Credit
3. For 19 to 24 =1.5 Credit
4. For 25 to 30 =2 Credit
5. For 31 to 35 =2.5 Credit
6. For 36 to 41 =3 Credit
7. For 42 to 47 =3.5 Credit
8. For 48 and above =4 Credit

For registration to MOOCs Courses, the students shall follow Infosys Springboard/NASSCOM/CISCO (as applicable) registration details as per the assigned login and password by the Institute these courses may be cleared during the B. Tech degree program (as per the list provided). After successful completion of these MOOCs courses, the students shall provide their successful completion status/certificates to the Controller of Examination (COE) of the Institute through their coordinators/Mentors only.

The students shall be awarded Honours Degree as per following criterion.

i. If he / she secures 7.50 as above CGPA.
ii. Passed each subject of that degree program in the single attempt without any grace.
iii. Successful completion of MOOCs based 20 credits

Course Code: BCSCY0701	Course Name: CLOUD SECURITY AND PRIVACY	L	T	P	C
Course Offered in: CSE(CYS)		3	0	0	3

Prerequisite: Familiarity with networking concepts, cybersecurity principles, and mobile application development.

Course Objectives:

To provide students with comprehensive knowledge and practical skills to secure cloud environments, ensure data privacy, and manage cloud- specific security challenges by implementing advanced security measures, conducting risk assessments, and complying with industry regulations.

Course Outcome: After completion of the course, the student will be able to		Bloom's Knowledge Level (KL)
CO1	Understand fundamental principles of cloud and mobile security, including threat landscapes, security architectures, and best practices for protecting data and applications in cloud and mobile environments.	K2
CO2	Implement and manage security measures to protect information systems and data from various threats.	K3
CO3	Apply advanced anonymization algorithms to ensure data privacy, critically evaluate their effectiveness, and create solutions for protecting sensitive information.	K3
CO4	Demonstrate understanding and application of industry-standard security practices in developing and deploying secure cloud-based and mobile applications, critically analyzing their effectiveness and evaluating potential risks.	K4
CO5	Analyze security tools for cloud and mobile security by applying techniques like IAM, encryption, vulnerability assessment, and threat detection.	K4

CO-PO Mapping (Scale 1: Low, 2: Medium, 3: High)

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

Course Contents / Syllabus

Unit 1 **Introduction To Cloud and Mobile Security** **8 hours**

Overview of Cloud Computing. Cloud Deployment Models and Security Implications: Public, Private, Hybrid Cloud. Importance of Security in Cloud and Mobile Environments, Mobile Security. Threat Landscape: Common Security Risks and Vulnerabilities, Security Principles and Best Practices, Malware, Rogue Applications, Device Theft, Network Attacks, Security Challenges in Cloud-Mobile Integrated Applications. Trust Models in Cloud and Mobile Environments.

Unit 2 **Cloud Security Fundamentals** **8 hours**

Cloud Service Models: IaaS, PaaS, SaaS Shared Responsibility Model in Cloud Security. Identity and Access Management (IAM) in Cloud Environments. Multi-factor Authentication and Federated Identity Management in Cloud. Secure Configuration Management for Cloud Resources. Data Encryption and Key Management. Securing Cloud Infrastructure: Virtualization, Containers, and Orchestration Runtime Security and Image Vulnerability Management. Logging, Monitoring, and Incident Detection in Cloud Platforms.

Unit 3	Privacy Preservation	10 hours
Privacy Risks in Cloud Data Storage and Processing Regulatory Requirements for Cloud Privacy: General Data Protection Regulation, Health Insurance Portability and Accountability Act. Anonymization techniques: Generalization, Suppression, Perturbation, Pseudonymization. Anonymization algorithms: Data fly, Incognito, Mondrian, Greedy K-members Clustering, K scalable anonymization, Differential Privacy Compliance and Governance in the Cloud. Cloud Security: Case Studies and Real-world Examples.		
Unit 4	**Mobile Security Basics**	**9 hours**
Mobile Operating Systems: IOS, Android Architecture and its Security, Application Sandboxing and Permission Models in Android and iOS. Secure APIs and Backend Communication for Mobile Apps. Secure Mobile Development Practices: Authentication and Authorization in Mobile Applications. Data Protection on Mobile Devices: Encryption, Secure Storages. Mobile Application Vulnerability Assessment and Secure Coding Practices. Backup Security and Remote Wipe Mechanisms on Mobile Devices.		
Unit 5	**Project Maintenance and Management Concepts**	**10 hours**
Mobile Device Management (MDM), Mobile Application Management (MAM) and Enterprise Mobility Management (EMM) Frameworks and Policy Enforcement. Mobile Threat Defense: Detection and Prevention Strategies, Mobile Patch Management and OS Update Strategies. Secure Communication on Mobile Devices: VPNs, TLS Biometric Security on Mobile Devices, Mobile Security Case Studies Device Compliance Monitoring and Risk Assessment. Incident Response and Forensic Considerations for Mobile Devices.		
	Total Lecture Hours	**45 hours**

Textbook:

	Author
1. Cloud Computing Security, Russell Dean Vines 1st Edition Wiley-India	Ronald L. Krutz
2. Practical Cloud Security 1st Edition O'Relly	Chris Dotson

Reference Books:

	Author
1. Computer Security: Principles and Practice —, Lawrie Brown — 4th Edition, Pearson	William Stallings
2. Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance —— 1st Edition O'Reilly Media.	Tim Mather, Subra Kumaraswamy Shahed Latif

Self-Study Content Links:		Duration (in Hrs)
MOOCs	1. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_014449376270909440246/overview	10 hrs
Video Lectures	1. NPTEL — Cloud Computing - YouTube Playlist ~5 hrs 2. YouTube ~4 hrs *(use first 4 hrs)* 3. Cloud Security Architecture — An Introduction -- YouTube - ~2 hrs 4. Android Security Full Course Part 1 --YouTube -~2 hrs 5. Android Application Security Testing Full Course -- YouTube -- ~2 hrs	15 hrs
Web References	1. https://www.isaca.org/resources/isaca-journal/issues/2024/volume-5/addressing-security-concerns-in-a-mobile-computing-environment 2. https://cloudsecurityalliance.org/blog/2023/10/17/the-importance-of-the-shared-responsibility-model-for-your-data-security-strategy 3. https://censinet.com/perspectives/top-frameworks-gdpr-data-de-identification	5 Hrs

	4. https://developer.android.com/privacy-and-security/security-tips 5. https://www.locknchargе.com/blog/mdm-security-strategy		

Course Code: BCSCY0711	Course Name: Security Risk Management	L	T	P	C
Course Offered in: CSE(CYS)		3	0	0	3

Prerequisite: Familiarity Students should have a foundational understanding of networking, cybersecurity basics, operating systems, and scripting. Familiarity with risk concepts, project lifecycle, and digital ethics is also recommended.

Course Objectives:

The objective of this course is to introduce the fundamental principles of risk management, focusing on how businesses and society assess, control, regulate, and transfer risk to ensure security and resilience, exploit, and remediate vulnerabilities in real-world environments.

Course Outcome: After completion of the course, the student will be able to		Bloom's Knowledge Level (KL)
CO1	Explain the nature, types, and sources of risk, uncertainty, and application security concepts including OWASP Top 10 and SSDLC.	K2
CO2	Describe risk management principles, frameworks, standards, and identity & access management concepts.	K2
CO3	Classify risks using FIRM and PESTLE frameworks and explain the phases of a cyber-attack lifecycle.	K3
CO4	Apply risk assessment techniques including risk matrix, risk appetite, inherent/current risk levels, and data & endpoint security controls.	K4
CO5	Analyze operational and project risk, evaluate information security standards (ISO 27000, NIST, COBIT), and support business continuity planning.	K4

CO-PO Mapping (Scale 1: Low, 2: Medium, 3: High)

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

Course Contents / Syllabus

Unit 1	Fundamentals of Risk and Application Security	08 hours

Definition and nature of risk; risk vs. uncertainty; classification and types of risk (short, medium, long-term); sources of risk; methods for measuring and evaluating risk. Importance of application security; OWASP Top 10 web application vulnerabilities; Secure Software Development Life Cycle (SSDLC).

Unit 2	Risk Management Principles and Identity & Access Management	09 hours

Principles and importance of risk management; risk management process and lifecycle; risk management standards and protocols; risk architecture, strategy, policies, and governance. Authorization and authentication; access control and access control models; privilege levels; IAM lifecycle and activities.

Unit 3	Risk Classification, Scoring and Cyber Attack Lifecycle	10 hours

FIRM and PESTLE risk classification systems; hazard risk, control risk, opportunity risk; risk scorecards, scoring and ranking methods. Phases of a cyber-attack — Reconnaissance, Weaponize, Deliver, Exploit, Install, Command & Control, Act on Objectives (Kill Chain model).

Unit 4	Risk Assessment and Data & Endpoint Security	09 hours

Importance and approaches of risk assessment; risk matrix, risk perception, risk appetite; application of risk matrix; inherent and

current risk levels; 4T's of risk response. Data security and data security controls; endpoint/host security concepts and controls.		
Unit 5	**Operational Risk, Project Risk and Information Security Standards**	**09 hours**
Risk appetite, tolerance, treatment, and termination; project risk management — uncertainty, lifecycle, planning and control; operational risk — definition, challenges, measurement. Corporate security governance; Business Continuity Planning (BCP); overview of top 20 security controls; ISO/IEC 27000 series (27001, 27002, 27005); NIST SP 800 series; COBIT; Standard of Good Practice (SoGP).		
	Total Lecture Hours	**45 hours**

Textbook

	Author
1. The Cybersecurity Guide to Governance Risk And Compliance, 1st Edition (2024), John Wiley & Sons	Jason Edwards and Griffin Weaver
2. Cyber Risk Management: Prioritize Threats, Identify Vulnerabilities and Apply Controls, 2nd Edition (2024), Kogan Page	Christopher J. Hodson,
3. Information Security Management Handbook, 1st Edition, CRC Press, 2004	Harold F. Tipton
4. Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management, 6th Edition, Kogan Page, 2022	Paul Hopkin

Reference Books:

	Author
1. Security Risk Management: Building an Information Security Risk Management Program from the Ground Up, 1st Edition, Syngress (Elsevier), 2011	Evan Wheeler
2. Managing Information Security Risks: The OCTAVE Approach, 1st Edition, Addison-Wesley Professional, 2002	Christopher Alberts and Audrey Dorofee,
3. Enterprise Security Risk Management: Concepts and Applications, 1st Edition, Rothstein Publishing, 2017	Brian J. Allen, Rachelle Loyear and Monica Bhaskaran
4. Risk Management for Computer Security: Protecting Your Network and Information Assets, 1st Edition, Butterworth-Heinemann (Elsevier), 2005	Andy Jones and Debi Ashenden
5. Management of Information Security, 6th Edition, Cengage Learning, 2021	Michael E. Whitman and Herbert J. Mattord
6. The Failure of Risk Management: Why It's Broken and How to Fix It, 2nd Edition (2020), John Wiley & Sons	Douglas W. Hubbard

Self-Study Content Links:		Duration (in Hrs)
MOOCs	1. Cyber Security Risk Management - TOC | Infosys Springboard 2. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01429932021642854411/overview 3. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01350158532372889611474/overview 4. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01350158312929689611290/overview 5. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01350157553438720010672/overview	4 Hrs. 7 Min 1h 19m 1h 26m 1h 52m 1h 28m
Video Lectures	1. https://www.youtube.com/watch?v=YYe0FdfdgDU 2. https://www.youtube.com/watch?v=rKEsxddOZ64 3. https://www.youtube.com/watch?v=s6XgCJ141Ww	~2 hrs ~1.5 hrs ~25 min

	4. https://www.youtube.com/watch?v=OnFM8MZfwyc 5. https://www.youtube.com/watch?v=MsuX_p_RJhg 6. https://www.youtube.com/watch?v=oYVYBPTe2zQ	~45 min ~1 hr ~8 hrs
Web References	1. https://alison.com/course/iso-iec-27001-dynamics-of-information-security-management-system-isms 2. https://alison.com/course/identity-and-access-management 3. https://csrc.nist.gov/projects/risk-management/rmf-courses 4. https://www.coursera.org/learn/owasp-top-10-risks-1-5 5. https://www.coursera.org/learn/owasp-risks-6-10	5 hours

Course Code: BCSDS0711	Course Name: BUSINESS ANALYTICS	L	T	P	C
Course Offered in: All emerging branches Department elective		3	0	0	3

Pre-requisite: Basic knowledge of statistics, database systems, and spreadsheet tools such as Microsoft Excel

Course Objectives:

To provide knowledge of the concepts and fundamentals of Business Analytics and Data Warehousing. To introduce data warehousing techniques and their applications in Business Analytics. To develop an understanding of business data analysis using statistical methods. To familiarize students with different levels of business analytics using R Programming. To enable the development of dashboards and reports for business decision-making.

Course Outcome: After completion of the course, the student will be able to		**Bloom's Knowledge Level (KL)**
CO1	Understand concepts of Business Analytics and Data Warehousing.	K2
CO2	Apply Data Warehousing techniques for Business Analytics.	K3
CO3	Analyze business data using statistical methods.	K4
CO4	Evaluate different levels of Business Analytics using R Programming.	K5
CO5	Develop dashboards and reports.	K6

CO-PO Mapping (Scale 1: Low, 2: Medium, 3: High)

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

Course Contents / Syllabus

UNIT 1	INTRODUCTION TO BUSINESS ANALYTICS	9 HOURS

Business Analytics: Definition, Importance, Scope. Types of Analytics: Descriptive and Diagnostic. Business Analytics vs Business Intelligence. Role of Data in Decision Making. Applications and Analytics Lifecycle.

UNIT 2	DATA WAREHOUSING	9 HOURS

Data Warehouse Architecture: Fundamentals of Data Warehouse, Components of Data Warehouse, Three-Tier Architecture, Data Warehouse Models, Data Integration Techniques, Data Storage and Organization,

OLTP vs OLAP Systems: ETL Process, Data Marts, Metadata, Star and Snowflake Schema, fact constellation schema.

UNIT 3	BUSINESS STATISTICS	9 HOURS

Descriptive statistics: Definition and importance, Types, Measures of central tendency, dispersion, shape, **Probability distributions:** Basic concepts of probability, Random variables, Probability distribution functions, Expected value and variance, Applications in business decision-making, Sampling: Population vs Sample, Sampling techniques, Sampling distribution, **Hypothesis testing:** Concept of hypothesis, Types of errors, Statistical tests, Decision-making using hypothesis testing, Correlation, Regression, Time series basics.		
UNIT 4	**R PROGRAMMING FOR BUSINESS ANALYTICS**	**9 HOURS**
Business Analytics Life Cycle, Model deployment, Steps in Problem Solving Process, Software used in Business Analytics, Getting Started with R. **Data Manipulation & Statistics:** Basics, Merging, Data Creation, Quantiles, Calculating Variance, Calculating Covariance, Cumulative Frequency, Library (mass), Head (faithful), Scatter Plot, Control Flow. **Business Analytics using R:** Normal PDF, Not Normal, SAT Example, Example- Birth Weights, dNorm, pNorm, qNorm, Understanding Estimation, Properties of Good Estimators, Central Limit Theorem, Kurtosis, Constructing Central Limit Theorem, Confidence Intervals for the Mean, Confidence Intervals Examples, t-distribution		
UNIT 5	**DASHBOARD TOOLS FOR BUSINESS ANALYTICS: ZOHO ANALYTICS/ POWER BI/ TABLEAU**	**9 HOURS**
Getting started with Zoho Analytics - Terminologies & Workflows, Importing Data From Files, Feeds, and Cloud Storage, Data Modeling Building powerful Formulas Formatting Tables & Custom Sorting Lookups & Data Blending, Creating Reports Building Charts, Pivot Tables, Tabular Views, and Summary Tables Applying Filters Customizing Reports Chart picker guide, Creating Dashboards Creating a Dashboard Adding KPI Widgets Adding User Filters Customizing Dashboards Timeline Filter and Merging User Filters.		
	Total Lecture Hours	**45 HOURS**

Textbook:

Book Details	**Authors Name**
1. Business Statistics	S. C. Gupta & V. K. Kapoor
2. Fundamentals of Data Warehousing	Paulraj Ponniah
3. Business Analytics	James R. Evans

Reference Books:

Book Details	**Authors Name**
1. Data Warehousing in the Real World	Sam Anahory & Dennis Murray
2. Excel Data Analysis	Wayne L. Winston
3. The Data Warehouse Toolkit	Ralph Kimball & Margy Ross
Self-Study Content Links:	**Duration (in Hrs)**

MOOC'S	https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01 384 18214952222724874_shared/overview https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01 38429 3374172364827469_shared/overview	8 HOURS 26 MIN 6 HOURS 57 MIN
Video Lectures	1. https://youtu.be/BSJRH3njZEE?si=qIM99oq-5-rNLk51 (1.11 hours) 2. **https://www.youtube.com/live/fGaJru-1fjI?si=CRUwLz8NEUSvPY3X** (2hours 32 minutes) 3. https://youtu.be/vEM4YnRFGoA?si=tasXrN0jly_DkbQF (11 hours) 4. https://youtu.be/fDRa82lxzaU?si=C1cmExJuTkZRgNXf (1 hours) 5.https://www.youtube.com/live/ZR4e8fbVpp4?si=A8DOORxLKn7Qpzpg	15 hours 32 minutes
Web References	Reference Taken from: https://www.bmu.edu.in/social/delve-into-the-mba-in-business-analytics-syllabus-subjects/#Module_1 https://sunstone.in/blog/mba-in-business-analytics-syllabus https://www.onlinemanipal.com/blogs/mba-in-business-analytics-subjects-list https://www.eicta.iitk.ac.in/knowledge-hub/data-analytics/business-analytics-course-syllabus	10 hours

LAB Course Code: BCSCY0751	LAB Course Name: Cloud Security & Privacy Lab	L	T	P	C
Course Offered in: CSE(CYS)		0	0	2	1

Pre-requisite: Basic knowledge of cloud computing (IaaS, PaaS, SaaS), networking fundamentals, operating systems, cybersecurity concepts, virtualization, basic programming/scripting.

Course Objectives:

To provide students with comprehensive knowledge and practical skills to secure cloud environments, ensure data privacy, and manage cloud-specific security challenges by implementing advanced security measures, conducting risk assessments, and complying with industry regulations.

Course Outcome: After completion of the course, the student will be able to		Bloom's Knowledge Level (KL)
CO1	Summarize Security risks and vulnerabilities and apply security measures within cloud and mobile environments to ensure robust protection for digital assets.	K2
CO2	Implement data anonymization techniques and analyze differential privacy methods to ensure data privacy and regulatory adherence.	K4
CO3	Analyze mobile app security, encrypt devices, simulate security incidents, and implement biometric authentication.	K4

CO-PO Mapping (Scale 1: Low, 2: Medium, 3: High)

CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	**3**	3	2	2	1	1	-	3	1	1	2	1	3	2	2
CO2	3	3	3	2	2	1	-	3	1	1	2	1	3	2	2
CO3	3	3	3	2	2	1	-	3	1	1	2	2	3	2	3

List Of Practical's (Indicative & Not Limited To)	**CO**
1. Basic Understanding of AWS Platform	CO1
2. Study of Cloud Deployment Models and Security Implications	CO1
3. Create Threat Models for Cloud-Based Systems and Mobile Apps	CO1
4. Configure IAM Roles and Policies for Access Control	CO1
5. Implementation of Multi-Factor Authentication (MFA) in AWS	CO1
6. Configure Logging and Monitoring using AWS CloudTrail and CloudWatch.	CO1
7. Container Vulnerability Assessment and Image Scanning	CO2
8. Secure Configuration Management for Cloud Resources	CO2
9. Implement Data Masking in Amazon RDS Databases	CO2
10. Learn and Implement Data Fly Algorithm for Dataset Anonymization	CO2
11. Learn and Implement Incognito Algorithm for Dataset Anonymization	CO2
12. Study Android and iOS Architecture and Security Mechanisms	CO3
13. Analyze Mobile App Security using MobSF and OWASP Guidelines	CO3
14. Implement Secure Mobile Application Development Practices	CO3
15. Encrypt Mobile Devices and Configure Security Settings	CO3
Total Hours: 30 hrs.	