



RAGHU ENGINEERING COLLEGE

AUTONOMOUS

(Approved by AICTE, New Delhi, Accredited by NBA (CIV,ECE,MECH,CSE), NAAC with 'A+' grade & Permanently Affiliated to JNTU-GV, Vizianagaram)

Dakamarri, Bheemunipatnam Mandal, Visakhapatnam Dist. – 531 162
(A.P.)

Ph: +91-8922-248001, 248002 Fax: + 91-8922-248011

E-mail: principal@raghuenggcollege.com website: www.raghuenggcollege.com

RAGHU ENGINEERING COLLEGE (AUTONOMOUS)

VISAKHAPATNAM

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INSTITUTE VISION

Envisioning to be a world class technical institution by synergizing quality education with ethical values.

INSTITUTE MISSION

- To encourage training and research in cutting-edge technologies.
- To develop and strengthen strategic links with the industry.
- To kindle the zeal among the students and promote their quest for academic excellence.
- To encourage extra-curricular activities along with good communication skills.

QUALITY POLICY

RAGHU Engineering College underscores ethical values along with innovative teaching through an interactive, activity-based pedagogy; establishes the best of infrastructural facilities, inculcates engineering temper among the students through the use of the latest Information and Communication Technologies, and strives for an efficient, responsive and transparent administration in all areas.



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Department of Computer Science and Engineering

VISION

To generate competent professionals to become part of the industry and research organizations at the national and international levels.

MISSION

To impart high quality professional training in undergraduate level with emphasis on basic principles of computer science and Engineering and to foster leading edge research in the fast-changing field.

To inculcate professional behavior, strong ethical values, innovative research capabilities and leadership abilities in the young minds so as to work with a commitment.

- M1: To impart high quality professional training at undergraduate level with emphasis on basic principles of computer science and Engineering and to foster leading edge research in the fast-changing field.
- M2: To inculcate innovative research capabilities and leadership abilities in the young minds so as to work with a commitment.
- M3: To inculcate professional behavior, strong ethical values in the young minds so as to work with a commitment.

PROGRAMME EDUCATIONAL OBJECTIVES(PEOs)

PEO 1: To produce graduates with a strong foundation in mathematics, science, engineering fundamentals, laboratory and work-based experiences to formulate and solve engineering problems in computer science engineering domains and shall have proficiency in implementation software tools and languages.

PEO 2: To progressively impart training to the students for success in various engineering positions within the core areas in computer science engineering, computational or adapting to the latest trends by learning themselves.

PEO 3: To produce graduates having the ability to pursue advanced higher studies and research. To have professional and communication skills to function as leaders and members of multidisciplinary teams in engineering and other industries with strong work ethics, organizational skills, teamwork, and understanding of the importance of being a thorough professional.



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MAPPING OF MISSION STATEMENTS WITH PEOs

MS/PEO	PEO 1	PEO 2	PEO 3
MS 1	3	2	2
MS 2	2	3	2
MS 3	2	2	3

1-Slight , 2- Moderate, 3- Substantial



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PROGRAM OUTCOMES	
Graduates of Computer Science and Engineering Will:	
PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to solve complex engineering problems.
PO 2	Problem analysis: Identity, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and the cultural, societal, and environmental concerns.
PO 4	Conduct investigations of complex problems: Use research-based knowledge and research methods, including design of experiments, analysis, interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics, responsibilities, and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual and as a member or leader in diverse teams and multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for, and have the preparation and ability to



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	engage in independent and life-long learning in the broadest context of technological change.
PROGRAM SPECIFIC OUTCOMES (PSOs)	
PSO 1: Apply the concepts and techniques of the Computer Science & Engineering branch and the Mathematical foundations in the significant domains to address the complex engineering problems.	
PSO 2: Employ emerging computer languages, computer networks, database management systems and platforms in developing innovative career prospects as an entrepreneur.	
PSO 3: Apply the knowledge of interdisciplinary skills, and domain-specific tools in working system processes to implement and deploy a quality-based software product to meet evolving needs.	

Mapping of PEOs with POs and PSOs

PEO/PO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
PEO 1	3	3	3	3	2	2	2	2		2		3	3	2	2
PEO 2	2	3	3	3	2	2	2	2	3	2	3	3	3	3	3
PEO 3	3	2	2	3	2	2	2	3	3	3	3	3	3	3	3

1-Slight , 2- Moderate, 3- Substantial



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(23) NoSQL DATABASE							
CSE							
Programme & Branch	B.Tech & CSE	Sem	Category	L	T	P	Credit
Prerequisites:	Relational Databases	3	HONORS	3	0	0	3
Preamble	The main objectives of the course is to make student						
Course Objectives: <ul style="list-style-type: none">● To understand the basic concepts and the applications of database systems.● To master the basics of SQL and construct queries using SQL● To understand the relational database design principles● To become familiar with the basic issues of transaction processing and concurrency control● To become familiar with database storage structures and access techniques							
Course Contents:							
Unit-1	Overview and History of NoSQL Databases. Definition of the Four Types of NoSQL Database, The Value of Relational Databases, Getting at Persistent Data, Concurrency, Integration, Impedance Mismatch, Application and Integration Databases, Attack of the Clusters, The Emergence of NoSQL, Key Points.					Contact Hours: 9	
Unit-2	Comparison of relational databases to new NoSQL stores, MongoDB, Cassandra, HBASE, Neo4j use and deployment, Application, RDBMS approach, Challenges NoSQL approach, Key-Value and Document Data Models, Column-Family Stores, Aggregate-Oriented Databases. Replication and sharding, Map Reduce on databases.					Contact Hours: 9	
Unit-3	NoSQL Key/Value databases using MongoDB, Document Databases, Document oriented Database Features, Consistency, Transactions, Availability, Query Features, Scaling, Suitable UseCases, Event Logging, Content Management Systems, Blogging Platforms.					Contact Hours: 9	



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Unit-4	Column-oriented NoSQL databases using Apache HBASE, Column oriented NoSQL databases using Apache Cassandra, Architecture of HBASE, Column Family Data Store Features, Consistency, Transactions, Availability, Query Features, Scaling, Suitable Use Cases, Event Logging, Content Management Systems	Contact Hours: 9
Unit-5	NoSQL Key/Value databases using Riak, Key-Value Databases, Key-Value Store, Key Value Store Features, Consistency, Transactions, Query Features, Structure of Data, Scaling, Suitable Use Cases, Storing Session Information, User Profiles, Preferences, Shopping Cart Data, Relationships among Data, Multi operation Transactions, Query by Data, Operations by Sets. Graph NoSQL databases using Neo4j.	Contact Hours: 9
		Total Hours: 45
Text Books:		
1	NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence, Sadalage, P. & Fowler, Wiley Publications, I Edition ,2019.	
Reference Books:		
1	NoSQL for Mere Mortals® Released April 2015 Publisher(s): Addison-Wesley Professional ISBN: 9780134029894	
2	SQL & NoSQL Databases: Models, Languages, Consistency Options and Architectures for Big Data Management Paperback – 16 July 2019 by Andreas Meier (Author), Michael Kaufmann (Author)	
Web References :		
1	https://www.ibm.com/cloud/learn/nosql-databases	
2	https://www.coursera.org/lecture/nosql-databases/introduction-to-nosql-VdRNp	
3	https://www.geeksforgeeks.org/introduction-to-nosql/	
4	https://www.javatpoint.com/nosql-database	
5	https://www.youtube.com/watch?v=0buKQHokLK8	
Preamble		After completion of the course, students will be able to
COURSE OUTCOMES:		BT Mapped (Highest Level)
Upon completion of the course, students shall have ability to		
CO 1	Illustrate different types of NoSQL Databases	Understanding
CO 2	Compare and contrast RDBMS with different NoSQL databases.	Understanding
CO 3	Demonstrate the detailed architecture and performance tune of Document oriented NoSQL databases.	Analyzing
CO 4	Explain the performance tune of Key-Value Pair NoSQL databases.	Understanding
CO 5	Apply Nosql development tools on different types of NoSQL Databases.	Applying



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Mapping of Cos with POs and PSOs

COs/POs	PO -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO -12	PSO -1	PSO -2	PSO 3
CO 1	1	2	1	-	3	-	-	-	-	-	-	1	-	2	2
CO 2	1	2	1	-	3	-	-	-	-	-	-	1	-	2	2
CO 3	1	2	2	-	3	-	-	-	-	-	-	1	1	2	2
CO 4	1	2	2	-	3	-	-	-	-	-	-	1	-	2	2
CO 5	1	2	1	-	3	-	-	-	-	-	-	1	-	2	2
1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy															

ASSESSMENT PATTERN – THEORY

TEST	Remembering (K1)%	Understanding (K2)%	Applying (K3)%	Analyzing (K4)%	Evaluating (K5)%	Creating (K6)%	Total%
MID-1	25	30	30	15			100
MID-2	25	30	30	15			100
SEE	30	35	25	5			100
*± 3% may be varied							

(Signature)
Head of the Department
(Seal/Stamp)

(Signature)
Principal
(Seal/Stamp)