RAGHU ENGINEERING COLLEGE (AUTONOMOUS)
VISAKHAPATNAM
(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

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.

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**- Substatial

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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 engage in independent and life-long learning in the broadest context of technological change.

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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.
PS0 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**- Substatial

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2349101-Software Engineering							
(CSO)							
Programme &Branch	**B.Tech& CSO**	**Sem**	**Category**	**L**	**T**	**P**	**Credit**
Prerequisites	Basics of Programming andBsics of UML	**3**	Professional Core	**3**	**0**	**0**	**3**
Preamble :	**The main objectives of the course is to make student**						

Course Objectives :

The objectives of studying of Software Engineering are as follows

1. To understand the software development life cycle
2. To understand the software requirements and SRS document
3. To understand the proper design process based on SRS document
4. To understand the implementation of design and design techniques
5. To understand software quality, maintenance and reuse

Course Contents:

Unit-1	**Software and Software Engineering:** Software, characteristics of software, software classification, Software crisis, Software Engineering, Goal of software engineering, Evolution of software engineering methodologies, challenges in Software engineering, software process. **Process model:** Elements of software model, Characteristics of software process, software development life cycle, waterfall model, Iterative waterfall model, Prototype model, Evolutionary model, Spiral model, Agile model of software development (XP model, SCRUM model, RUP process model.	Contact Hours: 9
Unit-2	**Requirement analysis and specification:** Types of software requirements, requirement engineering process, requirement elicitation, requirement analysis, software requirement specification (SRS), prototyping analysis, requirement specification, requirement validation formal system specification.	Contact Hours: 9
Unit-3	**Software design:** Overview of design Process, Characteristics of good software design, principles, modular design, design methodologies, cohesion and coupling, structured design, structured design methodologies, transform vs transaction analysis, Object oriented modeling using UML.	Contact Hours: 9
Unit-4	**Implementation & Testing:** coding principle, coding process,	Contact Hours: 9

	coding standards, coding guidelines, coding verification, code documentation software, coding, code review, software documentation. testing fundamental, unit testing, test planning, unit testing, Black Box testing, white box testing, levels of testing, performance testing, usability testing, regression testing, debugging approaches, integration testing	
Unit-5	**Software Reliability and quality management** **Software Maintenance** **Software Reuse:** Software Reliability, Software Quality, Software Quality Management System, ISO 9000, SEI Capability Maturity Model. Software Maintenance, Maintenance Process Model What can be reuse? Why almost no reuse so far? Basic issues in Reuse Approach	Contact Hours: 9
		Total Hours: 45

Text Books:	
1	Software Engineering, A Practitioner's Approach, Roger S. Pressman, Seventh Edition, McGrawHill International Edition
2	Fundamental of Software Engineering, Rajib Mall, Third Edition, PHI
3	Software Engineering, Ian Sommerville, Ninth Edition, Pearson Education
Reference Books:	
1	Software Engineering : A primer, Waman S Jawadekar, Tata McGrawHill, 2008
2	Software Engineering, A Precise Approach, Pankaj Jalote, Wiley India, 2010
3	Software Engineering, Principles and Practices, Deepak Jain, Oxford University Press
4	Software Engineering: Abstraction and Modeling, Dinner Bjorner, Springer International edition
Web References :	
1	https://www.youtube.com/watch?v=WxkP5KR_Emk&list=PLrjkTql3jnm9b5nr-ggx7Pt1G4UAHeFlJ
2	https://www.youtube.com/watch?v=NlLM3sVF8wY&list=PLmXKhU9FNesTrw7n8ouPsSLEcduRlENHr

Preamble :	**After completion of the course, students will be able to**

COURSE OUTCOMES: Upon completion of the course, students shall have ability to		**BT Mapped** (Highest Level)
CO 1	To understand the process of software engineering and SDLC model	Understanding
CO 2	To understand the process of requirement analysis and preparation on	Understanding

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	SRS document	
CO 3	To understand the different software design processes	Understanding
CO 4	To understand the implementation and testing approaches in software engineering	Applying
CO 5	To understand the different quality management, maintenance and reuse policy	Applying

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
CO 1	3	2	2	2	2	2	-	-	-	-	3	2	2	1
CO 2	3	3	2	3	-	-	-	-	-	-	-	-	2	1
CO 3	3	2	2	2	3	2	-	-	-	-	-	2	2	1
CO 4	3	3	2	3	2	-	-	-	-	-	3	2	2	1
CO 5	3	2	2	2	2	-	-	-	-	-	-	2	2	1
1 – Slight, 2 – Moderate, 3 – Substantial, BT- Bloom's Taxonomy														

ASSESSMENT PATERN – 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)