Rashtreeya Sikshana Samithi Trust

R.V. College of Engineering

(An Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi)

Department of Computer Science and Engineering

Master of Technology (M.Tech.)
In
Computer Science and Engineering

Scheme and Syllabus of
Autonomous System w.e.f 2016

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(An Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi)

Department of Computer Science and Engineering

Vision: To achieve leadership in the field of Computer Science and Engineering by strengthening fundamentals and facilitating interdisciplinary sustainable research to meet the ever growing needs of the society.

Mission:

- To evolve continually as a center of excellence in quality education in computers and allied fields.
- To develop state-of-the-art infrastructure and create environment capable for interdisciplinary research and skill enhancement.
- To collaborate with industries and institutions at national and international levels to enhance research in emerging areas.
- To develop professionals having social concern to become leaders in top-notch industries and/or become entrepreneurs with good ethics.

Program Educational Objectives (PEO)

M. Tech. in Computer Science and Engineering graduates will be able to:

PEO 1. Exhibit analytical and computational skills to solve problems of the real world in conventional and advanced areas of Computer Science and Engineering.

PEO 2. Learn, compete and adapt to constantly evolving technology to meet the challenging needs of the industries.

PEO 3. Conceptualize, innovate and collaborate for facilitating interdisciplinary research with focus on professional ethics and team work.

PEO 4. Apply skills acquired in Computer Science and Engineering domain to design solutions using sustainable and inclusive technology for career advancement and life-long learning.

Program Outcomes (PO)

The graduates of M.Tech in Computer Science and Engineering will be able to attain/accomplish:

PO 1. **Scholarship of Knowledge** - Acquire in-depth knowledge of Computer Science and Engineering to discriminate, evaluate, analyze and synthesize existing and new knowledge and to integrate the same for enhancement of knowledge with a global perspective.

PO 2. **Critical Thinking** - Analyze complex problems critically related to Computer Science and Engineering domain, apply independent judgment for synthesizing information to make intellectual and/or creative advances with a research perspective.

PO 3. **Problem Solving** - Conceptualize and solve Computer Science and Engineering problems effectively and arrive at feasible optimal solution, individually and in teams, to accomplish a common goal considering public health and safety, cultural, societal and environmental factors.

PO 4. **Research Skill** - Extract and analyze information through literature survey for solving problems by applying research methodologies, techniques, tools and design, conduct experiments, analyze and interpret data, demonstrate higher order skills and view things in a broader perspective, contribute individually/in group(s) to the development of scientific/technological knowledge in Computer Science and Engineering domain.

PO 5. **Usage of modern tools** - Create, select, learn and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities with an understanding of the limitations.

PO 6. **Collaborative and Multidisciplinary work** - Possess knowledge and understanding of group dynamics, recognize opportunities and contribute positively to collaborative-multidisciplinary scientific research, demonstrate a capacity for self-management and teamwork, decision-making based on open-mindedness, objectivity and rational analysis in order to achieve common goals and further the learning of themselves as well as others.

PO 7. **Project Management and Finance** - Demonstrate knowledge and understanding of Computer Science and Engineering, management principles and apply the same to one's own work, as a member and leader in a team, manage projects efficiently in respective disciplines and multidisciplinary environments after consideration of economic and financial factors.

PO 8. **Communication**- Communicate with Computer Science and Engineering community, and with society at large, regarding complex engineering activities confidently and effectively, such as, being able to comprehend, make effective presentations and to write effective reports by adhering to appropriate standards.

PO 9. **Life-long Learning** - Recognize the need for, and have the preparation and ability to engage in life-long learning independently, with a high level of enthusiasm and commitment to improve knowledge and competence

continuously.

PO 10. **Ethical Practices and Social Responsibility -** Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society.

PO 11. **Independent and Reflective Learning -** Observe and examine critically the outcomes of one's actions and make corrective measures subsequently, and learn from mistakes with or without depending on external feedback.

Program Specific Criteria for M.Tech in Computer Science and Engineering

Professional Bodies: IEEE-CS, ACM

The M.Tech program in Computer Science and Engineering prepares the students for career in computer related courses that deal with design concepts with implementation. The program enables the students to acquire breadth and depth wise knowledge in computer science domain. The curriculum emphasizes courses on Mathematics and Statistics, Humanities, Ethics and Professional Practice, Computer Architecture, Analysis of Algorithms, Operating Systems, Computer Networks and Information Security, Computer Security along with elective courses. The program enables students in problems solving, critical thinking and communication skills with focus on team work.

Program Specific Outcomes (PSO)

The graduates of M. Tech. in Computer Science and Engineering Graduates will be able to:

PSO 1. Model, design and develop robust computer applications by applying relevant data structures with suitable algorithms, techniques and strategies to deliver quality software solutions.

PSO 2. Apply skills acquired for retrieving, analyzing and managing large data leading to effective decision making and application development using suitable engineering tools.

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FIRST SEMESTER								
Sl. No	**Course Code**	**Course Title**	**BoS**	**CREDIT ALLOCATION**				**Total Credits**
				Lecture L	**Tutorial T**	**Practical P**	**Self-Study S**	
1.	16MEM11R	Research Methodology	IM	3	1	0	0	4
2.	16MAT12A	Probability Statistics and Queuing	MA	4	0	0	0	4
3.	16MCE13	Advances in Database Management System (Theory & Practice)	CS	4	0	1	0	5
4.	16MCE14	Operating System Internals and Design Principles	CS	4	0	0	1	5
5.	16MCE15x	Elective -1	CS	4	0	0	0	4
6.	16HSS16	Professional Skill Development	HSS	0	0	2	0	2
		Total		**19**	**1**	**3**	**1**	**24**

Elective -1			
16MCE151	Parallel Computer Architecture and Programming	16MCE152	Computer Network Technologies

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SECOND SEMESTER								
Sl. No	**Course Code**	**Course Title**	**BoS**	**CREDIT ALLOCATION**				**Total Credits**
				Lecture L	**Tutorial T**	**Practical P**	**Self-Study S**	
1.	16MEM21P	Project Management	IM	3	1	0	0	4
2.	16MCE22	Advanced Algorithms (Theory & Practice)	CS	4	0	1	0	5
3.	16MCE23x	Elective-2	CS	4	0	0	0	4
4.	16MCE24x	Elective-3	CS	4	0	0	0	4
5.	16MCE25x	Elective-4	CS	4	0	0	0	4
6.	16MCE26	Minor Project	CS	0	0	5	0	5
		Total		**19**	**1**	**6**	**0**	**26**

Elective-2			
16MCE231/16MCN231	Cloud Computing Technology	16MCE232/16MSE232	Computer Systems Performance Analysis
Elective-3			
16MCE241/16MIT241	Information Retrieval	16MCE242	Computer Vision
Elective-4			
16MCE251	Web Services	16MCE252	Fuzzy Logic and Soft Computing

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THIRD SEMESTER								
Sl. No	**Course Code**	**Course Title**	**BoS**	**CREDIT ALLOCATION**				**Total Credits**
				Lecture L	**Tutorial T**	**Practical P**	**Self-Study S**	
1	16MCE31	Data Science and Machine Learning Essentials (Theory and Practice)	CS	4	0	1	0	5
2	16MCE32x	Elective -5	CS	4	0	0	0	4
3	16MCE33x	Elective-6	CS	4	0	0	0	4
4	16MCE34x	Elective-7	CS/IS	4	0	0	0	4
5	16MCE35	Internship/ Industrial Training	CS	0	0	3	0	3
6	16MCE36	Technical Seminar	CS	0	0	2	0	2
		Total		**16**	**0**	**6**	**0**	**22**

Elective-5			
16MCE321	Cryptography and Network Security	16MCE322	Multimedia Computing
Elective-6			
16MCE331	Wireless Networks	16MCE332	Big Data Analytics and Applications
Elective-7			
16MCE341/16MCN341	Foundations for Internet of Things	16MCE342/16MIT342	Natural Language Processing and Text Mining

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FOURTH SEMESTER								
Sl. No	**Course Code**	**Course Title**	**BoS**	**CREDIT ALLOCATION**				**Total Credits**
				Lecture L	**Tutorial T**	**Practical P**	**Self-Study S**	
1	16MCE41	Major Project	CS	0	0	26	0	26
2	16MCE42	Seminar	CS	0	0	2	0	2
		Total		**0**	**0**	**28**	**0**	**28**