KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506 015, Telangana, INDIA.

काकतीय प्रैद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६ ०१५ तेलंगाना, भारत

కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ – ౫౦౬ ౦౧౫ తెలంగాణ, భారతదేశము

(An Autonomous Institute under Kakatiya University, Warangal)

(Approved by AICTE, New Delhi; Recognised by UGC under 2(f) & 12(B); Sponsored by EKASILA EDUCATION SOCIETY)

DEPARTMENT OF
ELECTRONICS & INSTRUMENTATION ENGINEERING

PG – M.Tech. (VLSI & EMBEDDED SYSTEMS)

PRR - 20

SCHEME OF INSTRUCTION & EVALUTION

(I Semester to IV Semester)

(Applicable from the Academic Year 2020-21)

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

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KITSW Estd-1980

| website: www.kitsw.ac.in | E-mail: principal@kitsw.ac.in | ✆ : +91 9392055211, +91 7382564888 |

VISION OF THE INSTITUTE

- *To make our students technologically superior and ethically strong by providing quality education with the help of our dedicated faculty and staff and thus improve the quality of human life*

MISSION OF THE INSTITUTE

- *To provide latest technical knowledge, analytical and practical skills, managerial competence and interactive abilities to students, so that their employability is enhanced*
- *To provide a strong human resource base for catering to the changing needs of the Industry and Commerce*
- *To inculcate a sense of brotherhood and national integrity*

DEPARTMENT OF

ELECTRONICS & INSTRUMENTATION ENGINEERING

VISION OF THE DEPARTMENT

- ***To provide quality education in Electronics & Instrumentation Engineering by nurturing the students with strong technical analytical, practical skills and ethics to make them engineering professional who cater to the societal needs with a high degree of integrity and social concern.***

MISSION OF THE DEPARTMENT

- *To provide progressive and quality educational environment with the help of dedicated faculty and staff by fully utilizing the information technology aiming at continuous teaching and learning process.*
- *To produce engineering graduates fit for employability with a competence to design, develop, invent and solve instrumentation engineering problems.*
- *To make the students ethically strong by inculcating sense of brotherhood.*
- *To make the students researches oriented by providing latest technical knowledge and thus cater to the changing needs of industry and commerce.*

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PG – M.Tech. (VLSI & EMBEDDED SYSTEMS)

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)	The postgraduates of **VLSI & EMBEDDED SYSTEMS** will be able to …
PEO1 **(Research and Innovation)**	*apply appropriate Electronic Design Automation tools to analyse & develop new methodologies to solve the real time problems in the domain of VLSI and Embedded Systems and contribute significantly in research and teaching*
PEO2 **(Technical expertise and Successful career)**	*excel as entrepreneurs and industrial professionals in the domain of VLSI and Embedded Systems with technical expertise in the areas of Semiconductor Technology, ASIC Design & Verification and Hardware & Software Development of Embedded Systems*
PEO3 **(Soft skills and Lifelong learning)**	*exhibit professional ethics, effective communication and teamwork in solving engineering problems by adapting ancient scientific methodologies for sustainable development of society with an attitude of perpetual learning*

PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)

PG – M.Tech. (VLSI & EMBEDDED SYSTEMS)

PROGRAM OUTCOMES (POs)	**At the time of graduation**, the postgraduates of **VLSI & EMBEDDED SYSTEMS** will be able to …
PO1	*independently carry out research /investigation and development work to solve practical problems*
PO2	*to write and present an effective technical report/document*
PO3	*demonstrate competence in the area of VLSI & Embedded Systems*
PROGRAM SPECIFIC OUTCOMES (PSOs):	
PSO1	*apply knowledge of VLSI and Embedded Systems for development of effective and innovative solutions to engineering problems in the broad areas like System Design, Semiconductor Technologies and applications*
PSO2	*utilize Electronic Design Automation tools to solve complex engineering problems in the domain of VLSI and Embedded Systems*

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING
KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE:: WARANGAL – 15
(An Autonomous Institute under Kakatiya University, Warangal)

PRR-20

**SCHEME OF INSTRUCTION & EVALUATION OF M.Tech. (VLSI & EMBEDDED SYSTEMS)
I-SEMESTER OF 2-YEAR M.TECH DEGREE PROGRAMME**

[4 Th+2 P+1 MC+1 AC]

S. No.	Course Category	Course Code	Course Title	Hours per Week			Credits	CIE - TA							ESE	Total Marks
								I²RE				Minor	MSE	Total		
				L	T	P		ATLP	CRP	CP	PPT					
1	PC	P20VE101	Professional Core-1: Digital IC Design	3	-	-	3	8	8	8	6	10	20	60	40	100
2	PC	P20VE102	Professional Core-2: Microcontroller based Embedded Systems	3	-	-	3	8	8	8	6	10	20	60	40	100
3	PE	P20VE103	Professional Elective-I/ MOOC-I	3	-	-	3	8	8	8	6	10	20	60	40	100
4	PE	P20VE104	Professional Elective-II/ MOOC-II	3	-	-	3	8	8	8	6	10	20	60	40	100
5	PC	P20VE105	Professional Core Lab-I: *(Based on Professional Core- 1)* Digital IC Design Laboratory	-	-	4	2	-	-	-	-	-	-	60	40	100
6	PC	P20VE106	Professional Core Lab-II: *(Based on Professional Core- 2)* Microcontroller based Embedded Systems Laboratory	-	-	4	2	-	-	-	-	-	-	60	40	100
7	MC	P20MC107	Research Methodology and IPR	2	-	-	2	8	8	8	6	10	20	60	40	100
8	AC	P20AC108	Audit Course-I	2	-	-	1	8	8	8	6	10	20	60	40	100
			Total	16	-	8	19							480	320	800

* Additional Learning: Students are advised to do MOOCs to bridge the gap in the curriculum, as suggested by the Department Academic Advisory Committee (DAAC). The credits earned by the student through MOOCs will be printed in the semester grade sheet.

[L= Lecture, T = Tutorials, P = Practicals, C = Credits, ATLP = Assignments, CRP = Course Research Paper, CP = Course Patent, PPT = Course Presentation, Minor=Minor Examination, MSE=Mid Semester Examination and ESE=End Semester Examination]

Professional Elective-I/ MOOC-I	Professional Elective-II/ MOOC-II	Audit Course-I
P20VE103A: Static Timing Analysis P20VE103B: System Verilog for Design & Verification P20VE103C: Embedded System Concepts P20VE103D: MOOCs	P20VE104A: Embedded Systems Design with RTOS P20VE104B: Linux and Python programming P20VE104C: Advanced VLSI Devices P20VE104D: MOOCs	P20AC108A: English for Research Paper Writing P20AC108B: Sanskrit for Technical Knowledge P20AC108C: Constitution of India P20AC108D: Pedagogy Studies

Contact hours per week: 24;   Total Credits: 19

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PRR-20

SCHEME OF INSTRUCTION & EVALUATION OF M.Tech. (VLSI & EMBEDDED SYSTEMS)
II-SEMESTER OF 2-YEAR M.TECH DEGREE PROGRAMME

[4 Th+2 P+1 Mini Project +1 AC]

S. No.	Course Category	Course Code	Course Title	Hours per Week L	T	P	Credits	CIE - TA I²RE ATLP	CRP	CP	PPT	Minor	MSE	Total	ESE	Total Marks
1	PC	P20VE201	Professional Core-3: Analog IC Design	3	-	-	3	8	8	8	6	10	20	60	40	100
2	PC	P20VE202	Professional Core-4: Internet of Things	3	-	-	3	8	8	8	6	10	20	60	40	100
3	PE	P20VE203	Professional Elective-III/ MOOC-III	3	-	-	3	8	8	8	6	10	20	60	40	100
4	PE	P20VE204	Professional Elective-IV/ MOOC-IV	3	-	-	3	8	8	8	6	10	20	60	40	100
5	PC	P20VE205	Professional Core Lab-III: (*Based on Professional Core- 3*) Analog IC Design Laboratory	-	-	4	2	-	-	-	-	-	-	60	40	100
6	PC	P20VE206	Professional Core Lab-IV: (*Based on Professional Core- 4*) Internet of Things Laboratory	-	-	4	2	-	-	-	-	-	-	60	40	100
7	PROJ	P20VE207	Mini Project with Seminar	-	-	4	2	-	-	-	-	-	-	100	-	100
8	AC	P20AC208	Audit Course-II	2	-	-	1	8	8	8	6	10	20	60	40	100
			Total	14	-	12	19							520	280	800

* Additional Learning: Students are advised to do MOOCs to bridge the gap in the curriculum, as suggested by the Department Academic Advisory Committee (DAAC). The credits earned by the student through MOOCs will be printed in the semester grade sheet.

Note: The students shall undergo mandatory Industrial training/ Internship for at least 6 to 8 weeks during summer vacation at Industry/R&D organization. Internship evaluation will be done during the III semester.

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Professional Elective-III/ MOOC-III	Professional Elective-IV/ MOOC-IV	Audit Course-II
P20VE203A: Low Power VLSI Design	P20VE204A: Artificial Intelligence & Machine Learning	P20AC208A: Stress Management by Yoga
P20VE203B: System on Chip Design	P20VE204B: Industrial IOT	P20AC208B: Value Education
P20VE203C: Wireless Technologies in Embedded systems	P20VE204C: VLSI DSP Architectures	P20AC208C: Personality Development through Life Enlightenment Skills
P20VE203D: MOOCs	P20VE204D: MOOCs	P20AC208D: Disaster Management

Contact hours per week: 26; Total Credits: 19

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PRR-20

SCHEME OF INSTRUCTION & EVALUATION OF M.Tech. (VLSI & EMBEDDED SYSTEMS)
III-SEMESTER OF 2-YEAR M.TECH DEGREE PROGRAMME
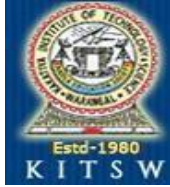
[2 Th+1 Dissertation+1 Internship]

S. No.	Course Category	Course Code	Course Title	Hours per Week			Credits	Evaluation Scheme								ESE	Total Marks
								CIE - TA									
								I²RE				Minor	MSE	Total			
				L	T	P		ATLP	CRP	CP	PPT						
1	PE	P20VE301	Professional Elective-V/ MOOC-V	3	-	-	3	8	8	8	6	10	20	60		40	100
2	OE	P20OE302	Open Elective-I/ MOOC-VI	3	-	-	3	8	8	8	6	10	20	60		40	100
3	PROJ	P20VE303	Dissertation *Phase-I /* Industrial Project *(to be continued in IV – semester also)*	-	-	18	9	-	-	-	-	-	-	100		-	100
4	PROJ	P20VE304	Internship Evaluation	-	-	2	-	-	-	-	-	-	-	100		-	100
			Total	**6**	**-**	**20**	**15**							**320**		**80**	**400**

* Additional Learning: Students are advised to do MOOCs to bridge the gap in the curriculum, as suggested by the Department Academic Advisory Committee (DAAC). The credits earned by the student through MOOCs will be printed in the semester grade sheet.

[L= Lecture, T = Tutorials, P = Practicals, C = Credits, ATLP = Assignments, CRP = Course Research Paper, CP = Course Patent, PPT = Course Presentation, Minor=Minor Examination, MSE=Mid Semester Examination and ESE=End Semester Examination]

Professional Elective-V/ MOOC-V	**Open Elective-I/ MOOC-VI**
P20VE301A: Design for Testability	P20OE302A: Business Analytics
P20VE301B: Radio Frequency IC design	P20OE302B: Industrial Safety
P20VE301C: Embedded Wireless Sensor Networks	P20OE302C: Operations Research
P20VE301D: MOOCs	P20OE302D: Cost Management of Engineering Projects
	P20OE302E: Composite Materials
	P20OE302F: Waste to Energy
	P20OE302G: Renewable Energy Sources
	P20OE302H: MOOCs

Contact hours per week: 26;   Total Credits: 15

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SCHEME OF INSTRUCTION & EVALUATION OF M.Tech. (VLSI & EMBEDDED SYSTEMS)
IV-SEMESTER OF 2-YEAR M.TECH DEGREE PROGRAMME

[1 Dissertation]

S. No.	Course Category	Course Code	Course Title	Hours per Week			Credits	Evaluation Scheme								ESE	Total Marks
								CIE - TA									
								I²RE				Minor	MSE	Total			
				L	T	P		ATLP	CRP	CP	PPT						
1	PROJ	P20VE401	Dissertation *Phase-II*	-	-	30	15	-	-	-	-	-	-	60		40	100
			Total	-	-	30	15							60		40	100

[L= Lecture, T = Tutorials, P = Practicals, C = Credits, ATLP = Assignments, CRP = Course Research Paper, CP = Course Patent, PPT = Course Presentation, Minor=Minor Examination, MSE=Mid Semester Examination and ESE=End Semester Examination]

Contact hours per week: 30;   Total Credits: 15

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PRR-20

SCHEME OF INSTRUCTION & EVALUATION OF M.Tech. (VLSI & EMBEDDED SYSTEMS)
COURSE CREDIT STRUCTURE AND COURSE WEIGHTAGE

COURSE CREDIT STRUCTURE

Semester	PRR-20 Curriculum	As per Model Curriculum
I	19	18
II	19	18
III	15	16
IV	15	16
Total:	68	68

COURSE WEIGHTAGE

Courses	% Weightage of Courses
Professional Theory	42.85 % (9/21)
Professional Lab	38.1 % (8/21)
Other	19.05 % (4/21)
Total:	100 % (21/21)

SEMESTER vs COURSE CATEGORY WEIGHTAGE
Number of Courses / Number of Credits (*Course Category wise*)

Semester	MC	PC	PE	OE	PROJ	AC	TOTAL
I	1/2	4/10	2/6	-	-	1/1	8/19
II	-	4/10	2/6	-	1/2	1/1	8/19
III	-	-	1/3	1/3	2/9	-	4/15
IV	-	-	-	-	1/15	-	1/15
Total	1/2	8/20	5/15	1/3	4/26	2/2	21/68
% Weightage of Course Category	2.94 % (2/68)	29.41 % (20/68)	22.05 % (15/68)	4.41 % (3/68)	38.23 % (26/68)	2.94 % (2/68)	100 % (68/68)