KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
(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)
Opp : Yerragattu Gutta, Hasanparthy (Mandal), WARANGAL - 506 015, Telangana, INDIA.
काकतीय प्रैद्योगिकी एवं विज्ञान संस्थान, वरंगल - ५०६ ०१५
కాకతీయ సాంకేతిక విజ్ఞాన శాస్త్ర విద్యాలయం, వరంగల్ – ౫౦౬ ౦౧౫
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 AND COMMUNICATION ENGINEERING

VISION OF THE DEPARTMENT

- *Develop the department into a full-fledged center of learning in various fields of Electronics and Communication Engineering in pursuit of excellence in Education, Research, Entrepreneurship and Technological services to the society*

MISSION OF THE DEPARTMENT

- *Imparting quality education to develop innovative and entrepreneurial professionals fit for globally competitive environment*
- *To nurture the students in the field of Electronics and Communication Engineering with an overall back-ground suitable for attaining a successful career in higher education, research and industry*

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

UG - ELECTRONICS AND COMMUNICATION ENGINEERING - ECE

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)	**Within first few years after graduation**, the **ELECTRONICS AND COMMUNICATION ENGINEERING** graduates will be able to …
PEO1: Technical Expertise	*building on fundamental knowledge, graduate should continue develop technical skills within and across disciplines in electronics and communication engineering for productive and successful career maintaining professional ethics*
PEO2: Successful Career	*graduates should develop and exercise their capabilities to demonstrate their creativity in engineering practice and team work with increasing responsibility and leadership*
PEO3: Soft Skills and Life Long Learning	*graduates should refine their knowledge and skills to attain professional competence through lifelong learning such as higher education, advanced degrees and professional activities*

PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)	
UG - ELECTRONICS AND COMMUNICATION ENGINEERING - ECE	
PROGRAM OUTCOMES (POs)	**At the time of graduation**, the **Electronics and Communication Engineering** graduates will be able to …
PO1: Engineering knowledge	*apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.*
PO2: Problem analysis	*identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences*
PO3: 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 the public health and safety, and the cultural, societal, and environmental considerations.*
PO4: Conduct investigations of complex problems	*use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.*
PO5: 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.*
PO6: 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.*
PO7: 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.*
PO8: Ethics	*apply ethical principles and commit to professional ethics, responsibilities, and norms of the engineering practice*
PO9: Individual and team work	*function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings*
PO10: 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*
PO11: Project management and finance	*demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments*
PO12: 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*
PROGRAM SPECIFIC OUTCOMES (PSOs):	
PSO1	*readiness for immediate professional practice.*
PSO2	*an ability to use fundamental knowledge to investigate new and emerging technologies leading to innovations.*

URR-18

(Applicable from the Academic Year 2018-19)

B.Tech. ELECTRONICS AND COMMUNICATION ENGINEERING (ECE)
AUTONOMOUS – REVISED SCHEME & SYLLABI (URR'18)
(*w.e.f. 2018-19*)
Of

B.Tech ECE SYLLABI (I to VIII SEMESTERS)

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(*An Autonomous Institution under Kakatiya University*)

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(An Autonomous Institute under Kakatiya University, Warangal)

SCHEME OF INSTRUCTIONS & EVALUATION FOR B.TECH. 4-YEAR DEGREE PROGRAMME

BRANCH : B.Tech. – CE / EEE / ECE/ECI/CSE (AI &ML) (Stream – II)
SEMESTER : FIRST

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P	C	CIE			ESE	Total Marks
								TA	MSE	Total		
1	BSC	U18MH101	Engineering Mathematics - I	3	1	-	4	10	30	40	60	100
2	ESC	U18CS102	Programming for Problem Solving using C	3	-	-	3	10	30	40	60	100
3	BSC	U18CH103	Engineering Chemistry	3	1	-	4	10	30	40	60	100
4	ESC	U18ME104	Engineering Drawing	2	-	4	4	10	30	40	60	100
5	ESC	U18CE105	Engineering Mechanics	3	1	-	4	10	30	40	60	100
6	ESC	U18CS107	Programming for Problem Solving using C Laboratory	-	-	2	1	40	-	40	60	100
7	BSC	U18CH108	Engineering Chemistry Laboratory	-	-	2	1	40	-	40	60	100
8	MC	U18CH109	Environmental Studies*	2	-	-	-	10	30	40	60	100
9	MC	U18EA110	EAA* : Sports/Yoga/NSS	-	-	2	_	100	-	100	-	100
10	MC	U18EA111	Universal Human Values-I (Induction Program)	-	-	-	-	-	-	-	-	-
			Total	**16**	**3**	**10**	**21**	**240**	**180**	**420**	**480**	**900**

L - Lectures; T – Tutorials; P – Practicals C = Credits

EAA – Extra Academic Activity
*** indicates mandatory non-credit course**

Contact hours per Week : 29
Total Credits : 21

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

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SCHEME OF INSTRUCTIONS & EVALUATION FOR B.TECH. 4-YEAR DEGREE PROGRAMME

BRANCH : B.Tech. – CE / EEE / ECE/ECI/CSE (AI &ML) (Stream – II)
SEMESTER : SECOND

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P	C	CIE			ESE	Total Marks
								TA	MSE	Total		
1	BSC	U18MH201	Engineering Mathematics - II	3	1	-	4	10	30	40	60	100
2	ESC	U18CS202	Data Structures through C	3	-	-	3	10	30	40	60	100
3	BSC	U18PH203	Engineering Physics	3	1	-	4	10	30	40	60	100
4	HSMC	U18MH204	English for Communication	2	-	2	3	10	30	40	60	100
5	ESC	U18EE205	Basic Electrical Engineering	3	1	-	4	10	30	40	60	100
6	ESC	U18EE206	Basic Electrical Engineering Laboratory	-	-	2	1	40	-	40	60	100
7	ESC	U18CS207	Data Structures through C Laboratory	-	-	2	1	40	-	40	60	100
8	BSC	U18PH208	Engineering Physics Laboratory	-	-	2	1	40	-	40	60	100
9	ESC	U18ME209	Workshop Practice	-	-	2	1	40	-	40	60	100
10	MC	U18EA210	EAA* : Sports/Yoga/NSS	-	-	2	-	100	-	100	-	100
			Total	**14**	**3**	**12**	**22**	**310**	**150**	**460**	**540**	**1000**

L - Lectures; T – Tutorials; P – Practicals & Credits
EAA – Extra Academic Activity
*** indicates mandatory non-credit course**

Contact hours per Week : 29
Total Credits : 22

DEPARTMENT OF ELECTRONICS &COMMUNICATION ENGINEERING
KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE:: WARANGAL – 15
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SCHEME OF INSTRUCTION & EVALUATION
III SEMESTER OF 4-YEAR B.TECH ECE DEGREE PROGRAM

III - Semester [Second year] [6Th+2P+1M]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
								CIE			ESE	Total Marks
				L	T	P		TA	MSE	Total		
1	BSC	U18MH301	Engineering Mathematics - III	3	1	-	4	10	30	40	60	100
2	HSMC	U18TP302	Soft and Interpersonal Skills	-	-	2	1	100	-	100	-	100
3	OE	U18OE303	Open Elective-I	3	-	-	3	10	30	40	60	100
4	PCC	U18EC304	Signals & Systems	3	-	-	3	10	30	40	60	100
5	PCC	U18EC305	Analog Circuits – I	3	-	-	3	10	30	40	60	100
6	PCC	U18EC306	Switching Theory & Logic Design	3	-	-	3	10	30	40	60	100
7	ESC	U18EE312	Network Analysis	3	-	-	2	10	30	40	60	100
8	PCC	U18EC308	Analog Circuits - I Laboratory	-	-	2	1	40	-	40	60	100
9	OE	U18OE311	Open Elective-I based Laboratory	-	-	2	1	40	-	40	60	100
			Total:	**18**	**1**	**6**	**21**	**240**	**180**	**420**	**480**	**900**

L= Lecture, T = Tutorials, P = Practicals & C = Credits

Open Elective-I:	**Open Elective-I based Laboratory**
U18OE303A: Object Oriented Programming (CSE)	U18OE311A: Object Oriented Programming Lab (CSE)
U18OE303B: Fluid Mechanics & Hydraulic Machines (CE)	U18OE311B: Fluid Mechanics & Hydraulic Machines Lab (CE)
U18OE303C: Fundamentals of Mechatronics (ME)	U18OE311C: Mechatronics Lab (ME)
U18OE303D: Web Programming (IT)	U18OE311D: Web Programming Lab (IT)
U18OE303F: Strength of Materials (CE)	U18OE311F: Strength of Materials Lab (CE)

Student Contact Hours / Week (periods/week) : 25
Total Credits (C) : 21 Credits

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SCHEME OF INSTRUCTION & EVALUATION
IV SEMESTER OF 4-YEAR B.TECH ECE DEGREE PROGRAM

IV - Semester [Second year] [6Th+2P+2M]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								TA	MSE	Total		
1	OE	U18OE401	Open Elective-II	3	1	-	4	10	30	40	60	100
2	HSMC	U18MH402	Professional English	-	-	2	1	100	-	100	-	100
3	PCC	U18EC403	Electro Magnetic Waves and Transmission Lines	3	-	-	3	10	30	40	60	100
4	PCC	U18EC404	Analog Circuits - II	3	-	-	3	10	30	40	60	100
5	PCC	U18EC405	Pulse and Digital Circuits	3	-	-	3	10	30	40	60	100
6	PCC	U18EC406	Probability and Random Processes	3	-	-	3	10	30	40	60	100
7	PCC	U18EC407	Digital Design	3	-	-	3	10	30	40	60	100
8	MC	U18MH415	Essence of Indian Traditional Knowledge	2	-	-	-	10	30	40	60	100
9	PCC	U18EC408	Analog Circuits - II Laboratory	-	-	2	1	40	-	40	60	100
10	PCC	U18EC409	Pulse and Digital Circuits Laboratory	-	-	2	1	40	-	40	60	100
			Total	**20**	**1**	**6**	**22**	**250**	**210**	**460**	**540**	**1000**
11	MC	U18CH416	Environmental Studies *	2	-	-	0	10	30	40	60	100

L= Lecture, T = Tutorials, P = Practicals & C = Credits

*** indicates Mandatory Non-Credit course for Lateral Entry Students Only**

Contact hours per week : 27 **Total Credits : 22**

Open Elective-II
U18OE401A: Applicable Mathematics (M&H)
U18OE401C: Elements of Mech. Engg. (ME)
U18OE401E: Computers Networks (IT)
U18OE401F: Renewable Energy Resources (EEE)

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V SEMESTER OF 4-YEAR B.TECH DEGREE PROGRAM
[5Th+3P+1MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								TA	MSE	Total		
1	MC	U18MH501	Universal Human Values - II	2	-	-	-	10	30	40	60	100
2	PE	U18EC502	Professional Elective - I / MOOCs - I	3	-	-	3	10	30	40	60	100
3	PCC	U18EC503	Communication Systems	3	-	-	3	10	30	40	60	100
4	PCC	U18EC504	Antennas and Wave Propagation	3	-	-	3	10	30	40	60	100
5	PCC	U18EC505	Linear Integrated Circuits and Applications	3	-	-	3	10	30	40	60	100
6	PCC	U18EC506	Microprocessors and Microcontrollers	3	-	-	3	10	30	40	60	100
7	PCC	U18EC507	Communication Systems Laboratory	-	-	2	1	40	-	40	60	100
8	PCC	U18EC508	IC Applications Laboratory	-	-	2	1	40	-	40	60	100
9	PCC	U18EC509	Microprocessors and Microcontrollers Laboratory	-	-	2	1	40	-	40	60	100
10	PROJ	U18EC510	Seminar	-	-	2	1	100	-	100	-	100
			Total:	**17**	**-**	**8**	**19**	**280**	**180**	**460**	**540**	**1000**

L= Lecture, T = Tutorials, P = Practicals & C = Credits

Professional Elective-I / MOOCs - I:
U18EC502A: Artificial Intelligence and Machine Learning with Python
U18EC502B: Pervasive Computing
U18EC502C: Electronic Measurements and Instrumentation
U18EC502M: MOOC Course

Contact hours per week : 25
Total Credits : 19

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SCHEME OF INSTRUCTION & EVALUATION
VI SEMESTER OF 4-YEAR B.TECH DEGREE PROGRAM

[6Th+2P+1MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								TA	MSE	Total		
1	HSMC	U18TP601	Quantitative Aptitude & Logical Reasoning	2	-	-	1	10	30	40	60	100
2	HSMC	U18MH602	Management Economics & Accountancy	3	-	-	3	10	30	40	60	100
3	PE	U18EC603	Professional Elective -II / MOOCs-II	3	-	-	3	10	30	40	60	100
4	PCC	U18EC604	Digital Signal Processing and Applications	3	-	-	3	10	30	40	60	100
5	PCC	U18EC605	VLSI Circuits and Systems	3	-	-	3	10	30	40	60	100
6	ESC	U18EE611	Control Systems	3	-	-	3	10	30	40	60	100
7	PCC	U18EC606	Embedded Systems with ARM Processor and Applications	3	-	-	3	10	30	40	60	100
8	PCC	U18EC607	Embedded Systems and Applications laboratory	-	-	2	1	40	-	40	60	100
9	PCC	U18EC608	Digital Signal Processing Laboratory	-	-	2	1	40	-	40	60	100
10	PROJ	U18EC610	Mini Project	-	-	2	1	100	-	100	-	100
			Total:	**20**	**-**	**6**	**22**	**250**	**210**	**460**	**540**	**1000**

L= Lecture, T = Tutorials, P = Practicals & C = Credits

Professional Elective-II / MOOCs -II:
U18EC603A: Industrial Internet of Things
U18EC603B: Wireless Sensor Networks
U18EC603C: Biomedical Instrumentation
U18EC603M: MOOC Course

Contact hours per week : 26
Total Credits : 19

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SCHEME OF INSTRUCTION & EVALUATION
VII SEMESTER OF 4-YEAR B.TECH DEGREE PROGRAM

[4Th+2P+1MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								TA	MSE	Total		
1	OE	U18OE701	Open Elective- III	3	-	-	3	10	30	40	60	100
2	PE	U18EC702	Professional Elective - III /MOOCs-III	3	-	-	3	10	30	40	60	100
3	PE	U18EC703	Professional Elective - IV / MOOCs-IV	3	-	-	3	10	30	40	60	100
4	PCC	U18EC704	Wireless Communication and Networks	3	-	-	3	10	30	40	60	100
5	PCC	U18EC705	Wireless Communication and Networks Lab	-	-	2	1	40	-	40	60	100
6	PCC	U18EC706	VLSI Lab	-	-	2	1	40	-	40	60	100
7	PROJ	U18EC707	Major Project Phase – I	-	-	6	3	100	-	100	-	100
8	MC	U18EC708	Internship Evaluation	-	-	2	-	100	-	100	-	100
			Total:	**12**	**-**	**12**	**17**	**320**	**120**	**440**	**360**	**800**

L= Lecture, T = Tutorials, P = Practicals & C = Credits

Open Elective-III:	**Professional Elective-III / MOOCs-III:**	**Professional Elective-IV / MOOCs-IV:**
U18OE701A: Disaster Management U18OE701B: Project Management U18OE701C: Professional Ethics in Engineering U18OE701D: Rural Technology and Community Development	U18EC702A: Data Science Engineering U18EC702B: Real-Time Embedded Systems U18EC702C: Microwave and Optical Fiber Communication U18EC702M: MOOC course	U18EC703A: Electronic System Design and Manufacturing U18EC703B: VLSI Physical Design U18EC703C: Digital Image Processing U18EC703M: MOOC course

Contact hours per week : 26
Total Credits : 19

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SCHEME OF INSTRUCTION & EVALUATION
VIII SEMESTER OF 4-YEAR B.TECH DEGREE PROGRAM

[3Th+0P+0MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								TA	MSE	Total		
1	PE	U18EC801	Professional Elective - V / MOOCs-V	3	-	-	3	10	30	40	60	100
2	PE	U18EC802	Professional Elective - VI /MOOCs-VI	3	-	-	3	10	30	40	60	100
3	OE	U18OE803	Open Elective - IV / MOOCs-VII	3	-	-	3	10	30	40	60	100
4	PROJ	U18EC804	Major Project - Phase - II	-	-	14	7	60	-	60	40	100
			Total:	**9**	**-**	**14**	**16**	**90**	**90**	**180**	**220**	**400**

[L= Lecture, T = Tutorials, P = Practicals & C = Credits

Professional Elective-V / MOOCs-V: U18EC801A: Cognitive Radio Networks U18EC801B: FPGA-Based System Design U18EC801C: Radar and Satellite Communication U18EC801M: MOOC course	**Professional Elective-VI/ MOOCs-VI:** U18EC802A: Cellular and Mobile Communication System U18EC802B: MEMs and NEMs U18EC802C: Digital Speech Processing U18EC802M: MOOC course	**Open Elective-IV /MOOCs-VII:** U18OE803A: Operations Research U18OE803B: Management Information Systems U18OE803C: Entrepreneurship Development U18OE803D: Forex and Foreign Trade U18OE803M: MOOC course

Contact hours per week : 26
Total Credits : 19

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SEMESTER WISE CREDITS DISTRIBUTION

SEM	No. of Credits	Contact hours
I	21	29
II	22	29
III	21	25
IV	22	27
V	19	25
VI	22	26
VII	17	24
VIII	16	23
Total	160	208

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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SEMESTER Vs COURSE CATEGORY WEIGHTAGE

(in terms of Total No. of Courses / Total No. Credits)

Semester	Number of Courses / Number of Credits (*Course Category wise*)								
	BSC	**ESC**	**HSMC**	**PCC**	**OE**	**PE**	**PROJ**	**MC**	**TOTAL**
I	3/9	4/12	-	-	-	-	-	2/0	9/21
II	3/9	5/10	1/3	-	-	-	-	1/0	10/22
III	1/4	1/2	1/1	4/10	2/4	-	-	-	9/21
IV	-	-	1/1	7/17	1/4	-	-	2/0	11/22
V	-			7/15	-	1/3	1/1	1/0	10/19
VI	-	1/3	2/4	5/11	-	1/3	1/1	-	10/22
VII	-	-	-	3/5	1/3	2/6	1/3	1/0	8/17
VIII	-	-	-	-	1/3	2/6	1/7	-	4/16
Total	**7/22**	**11/27**	**5/9**	**26/58**	**5/14**	**6/18**	**4/12**	**7/0**	**71/160**
% Weightage of Course Category	13.75 % (22/160)	16.87 % (27/160)	5.625 % (9/160)	36.25 % (58/160)	8.75 % (14/160)	11.25 % (18/160)	7.5 % (12/160)	0 %	100 % (160/160)