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 COMMUNICATION AND INSTRUMENTATION ENGINEERING – ECI

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)	**Within first few years after graduation**, the **ELECTRONICS COMMUNICATION AND INSTRUMENTATION ENGINEERING** graduates will be able to …
PEO1: Technical Expertise	*apply the knowledge of core courses of electronics communication and instrumentation engineering for development of effective and innovative solutions to engineering problems*
PEO2: Successful Career	*excel in profession, higher education and entrepreneurship with updated technologies in communication, signal processing, VLSI, embedded systems, and instrumentation domains.*
PEO3: Soft Skills and Life Long Learning	*exhibit professional ethics, effective communication, and teamwork in solving engineering problems by adapting contemporary research towards sustainable development of society.*

PROGRAM OUTCOMES (POs) & PROGRAM SPECIFIC OUTCOMES (PSOs)	
UG - ELECTRONICS COMMUNICATION AND INSTRUMENTATION ENGINEERING	
PROGRAM OUTCOMES (POs)	**At the time of graduation**, the **ELECTRONICS COMMUNICATION AND INSTRUMENTATION ENGINEERING (ECI)** 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, 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	*apply the fundamentals of electronics, communication, signal processing, VLSI, embedded systems, and instrumentation in development of hardware and software prototypes and systems for complex engineering problems.*
PSO2	*apply appropriate methodology, contemporary hardware and software tools to solve complex engineering problems related to embedded systems.*

URR-18

(Applicable from the Academic Year 2018-19)

B.Tech. ELECTRONICS COMMUNICATION & INSTRUMENTATION ENGINEERING (ECI)

AUTONOMOUS – REVISED SCHEME & SYLLABI (URR'18)

(w.e.f. 2018-19)

Of

B.Tech ECI SYLLABI (I to VIII SEMESTERS)

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(*An Autonomous Institution under Kakatiya University*)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(An Autonomous Institute under Kakatiya University, Warangal)

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

SEMESTER : FIRST

[First year]

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	U18MH111	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

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(An Autonomous Institute under Kakatiya University, Warangal)

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

SEMESTER : SECOND

[First year]

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
(An Autonomous Institute under Kakatiya University, Warangal)

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

[6+2+1M]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
				L	T	P		CIE			ESE	Total Marks
								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	U18CI304	Signals Systems and Random Processes	3	1	-	4	10	30	40	60	100
5	PCC	U18CI305	Electronic Devices and Applications	3	-	-	3	10	30	40	60	100
6	PCC	U18CI306	Electronic Measurements and Sensors	3	-	-	3	10	30	40	60	100
7	PCC	U18CI307	Digital Circuits and Logic Design	3	-	-	3	10	30	40	60	100
8	PCC	U18CI308	Electronic Measurements and Sensors Laboratory	-	-	2	1	40	-	40	60	100
9	OE	U18OE311	Open Elective-I based Laboratory	-	-	2	1	40	-	40	60	100
			Total:	18	2	6	23	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 and Hydraulic Machines (CE)	U18OE311B: Fluid Mechanics and 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)

Contact hours per week : 26
Total Credits : 23

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15
(An Autonomous Institute under Kakatiya University, Warangal)
SCHEME OF INSTRUCTION & EVALUATION
IV - SEMESTER OF 4-YEAR B.TECH ECI DEGREE PROGRAM

[5Th+3P+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	U18CI403	Electromagnetic Theory and Transmission Lines	3	1	-	4	10	30	40	60	100
4	PCC	U18CI404	Analog Electronic Circuits	3	-	-	3	10	30	40	60	100
5	PCC	U18CI405	Digital Signal Processing	3	-	-	3	10	30	40	60	100
6	PCC	U18CI406	Microprocessors Microcontrollers	3	-	-	3	10	30	40	60	100
7	MC	U18MH415	Essence of Indian Traditional Knowledge	2	-	-	-	10	30	40	60	100
8	PCC	U18CI407	Programming with Python Laboratory	-	-	2	1	40	-	40	60	100
9	PCC	U18CI408	Electronic Devices and Circuits Laboratory	-	-	2	1	40	-	40	60	100
10	PCC	U18CI409	Signal Processing and Applications Laboratory	-	-	2	1	40	-	40	60	100
			Total	17	2	8	21	280	180	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**

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

Contact hours per week : 27
Total Credits : 21

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

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

[5Th+3P+1MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
								CIE			ESE	Total Marks
				L	T	P		TA	MSE	Total		
1	MC	U18MH501	Universal Human Values - II	2	-	-	-	10	30	40	60	100
2	PE	U18CI502	Professional Elective - I / MOOCs – I	3	-	-	3	10	30	40	60	100
3	PCC	U18CI503	Analog and Digital Communications	3	1	-	4	10	30	40	60	100
4	ESC	U18EE511	Linear Control Systems	3	-	-	3	10	30	40	60	100
5	PCC	U18CI504	Embedded System Design	3	-	-	3	10	30	40	60	100
6	PCC	U18CI505	Linear Integrated Circuits and Applications	3	-	-	3	10	30	40	60	100
7	PCC	U18CI506	Embedded System Design Laboratory	-	-	2	1	40	-	40	60	100
8	PCC	U18CI507	Analog and Digital Communications Laboratory	-	-	2	1	40	-	40	60	100
9	PCC	U18CI508	Linear and Digital Integrated Circuits Laboratory	-	-	2	1	40	-	40	60	100
10	PROJ	U18CI510	Seminar	-	-	2	1	100	-	100	-	100
			Total:	17	1	8	20	280	180	460	540	1000

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

Professional Elective-I / MOOCs-I:
U18CI502A: Artificial Intelligence and Machine Learning
U18CI502B: Antennas and Wave Propagation
U18CI502C: Data Acquisition and Processing
U18CI502M: MOOC Course

Contact hours per week : 26
Total Credits : 20

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

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

[5Th+3P+2MC]

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 and Logical Reasoning	2	-	-	1	10	30	40	60	100
2	HSMC	U18MH602	Management Economics and Accountancy	3	-	-	3	10	30	40	60	100
3	PE	U18CI603	Professional Elective -II / MOOCs-II	3	-	-	3	10	30	40	60	100
4	PCC	U18 CI 604	Embedded Systems with ARM Processor	3	-	-	3	10	30	40	60	100
5	PCC	U18 CI 605	VLSI System Design	3	-	-	3	10	30	40	60	100
6	PCC	U18 CI 606	Wireless and Data Communication	3	-	-	3	10	30	40	60	100
7	PCC	U18 CI 607	Digital Design Laboratory	-	-	2	1	40	-	40	60	100
8	PCC	U18 CI 608	Embedded Systems with ARM Processor Laboratory	-	-	2	1	40	-	40	60	100
9	PCC	U18 CI 609	Embedded networking and Application Laboratory	-	-	2	1	40	-	40	60	100
10	PROJ	U18CI610	Mini Project	-	-	2	1	100	-	100	-	100
			Total:	17	-	8	20	280	180	460	540	1000

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

Professional Elective-II / MOOCs-II:

U18CI 603A : Internet of things
U18 CI 603B: Wireless Sensor Networks and Applications
U18 CI 603C: Biomedical Instrumentation
U18 CI 603M: MOOC Course

Contact hours per week : 25
Total Credits : 20

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

SCHEME OF INSTRUCTION & EVALUATION
VII - SEMESTER OF 4-YEAR B.TECH ECI 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	U18CI 702	Professional Elective - III /MOOCs-III	3	-	-	3	10	30	40	60	100
3	PE	U18CI 703	Professional Elective - IV / MOOCs-IV	3	-	-	3	10	30	40	60	100
4	PCC	U18CI 704	Industrial Instrumentation and Process Control	3	-	-	3	10	30	40	60	100
5	PCC	U18CI 705	Industrial Instrumentation and Process Control Lab	-	-	2	1	40	-	40	60	100
6	PCC	U18CI 706	Real Time Embedded Systems Lab	-	-	2	1	40	-	40	60	100
7	PROJ	U18CI 707	Major Project Phase – I	-	-	6	3	100	-	100	-	100
8	MC	U18 CI 708	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: U18OE701A: Disaster Management U18OE701B: Project Management U18OE701C: Professional Ethics in Engineering U18OE701D: Rural Technology and Community Development	**Professional Elective-III / MOOCs-III:** U18CI 702A: Data Science U18CI 702B: Microwave and Optical Fiber Communication U18CI 702C: RTOS for Embedded System U18CI 702M: MOOC course	**Professional Elective-IV / MOOCs-IV:** U18CI 703A: Robotics U18CI 703B: Digital Image Processing U18CI 703C: FPGA-Based System Design U18CI 703M: MOOC course

Contact hours per week : 24
Total Credits : 17

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE: WARANGAL-15

(An Autonomous Institute under Kakatiya University, Warangal)

SCHEME OF INSTRUCTION & EVALUATION

VIII - SEMESTER OF 4-YEAR B.TECH ECI DEGREE PROGRAM

[3Th+0P+0MC]

Sl.No	Category	Course Code	Course Title	Hour per week			Credits	Evaluation Scheme				
								CIE			ESE	Total Marks
				L	T	P		TA	MSE	Total		
1	PE	U18CI801	Professional Elective - V / MOOCs-V	3	-	-	3	10	30	40	60	100
2	PE	U18CI802	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	U18CI804	Major Project - Phase - II	-	-	14	7	40	-	40	60	100
			Total:	9	-	14	16	70	90	160	240	400

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

Professional Elective-V / MOOCs-V: U18CI 801A: Cognitive Radio U18CI 801B: Radar and Satellite communication U18CI 801C: Industrial Automation U18CI 801M: MOOC course	**Professional Elective-VI/ MOOCs-VI:** U18 CI 802A: Cellular Mobile Communication U18CI802B: Advanced Wireless Communication U18CI 802C: VLSI Structural Design U18CI 802M: 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 : 23
Total Credits : 16

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

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	22
III	1/4	-	1/1	5/14	2/4	-	-	-	9/23
IV	-	-	1/1	7/16	1/4	-	-	2/0	11/21
V	-	1/3	1/0	6/13	-	1/3	1/1	-	10/20
VI	-	-	2/4	6/12	-	1/3	1/1	-	10/20
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**	**10/25**	**6/9**	**27/60**	**5/14**	**6/18**	**4/12**	**6/0**	**71160**
% Weightage of Course Category	13.75 % (22/160)	15.625 % (25/160)	5.625 % (9/160)	37.5 % (60/160)	8.75 % (14/160)	11.25 % (18/160)	7.5 % (12/160)	0 %	100 % (160/160)