Indra Ganesan
COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 2

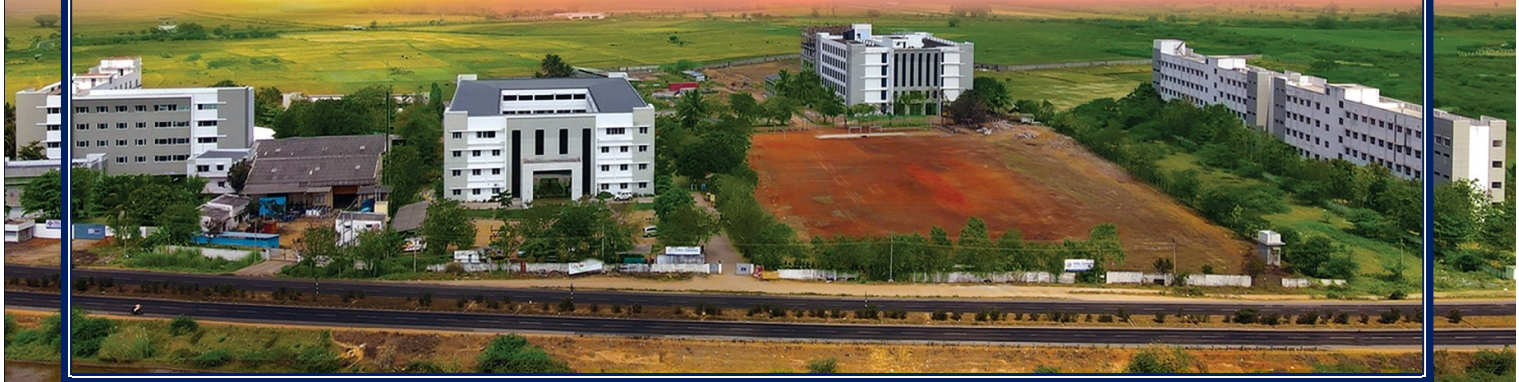
TEACHING-LEARNING AND EVALUATION

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING



Indra Ganesan
COLLEGE OF ENGINEERING
Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli - 620 012
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Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator-2.6 Student Performances and Learning Outcome (90)

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all programmes offered by the institution are stated and displayed on website

DEPARTMENT OF S&H R2013

INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

DEPARTMENT OF SCIENCE AND HUMANITIES

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

I SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
HS6151	Technical English -I	**CIOI.1:** Apply the collaborative and social aspects of research and writing processes.
		CIOI.2: Comprehend that research and writing is a series of tasks, including accessing, retrieving, evaluating, analyzing and synthesizing appropriate data and information from sources that vary in content, format, structure and scope.
		CIOI.3: Use appropriate technologies to organize, present and communicate information to address a range of audiences, purposes and genres.
		CIOI.4: Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations.
		CIOI.5: Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing.
		CIOI.6: Analyze and identify the root for effective managerial skills through different spoken discourse and excerpts.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
CIOI.1	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CIOI.2	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CIOI.3	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CI0I.4	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CI0I.5	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CIOI.6	2	2	-	-	-	-	1	-	1	1	-	1	1	-	-
CIOI	**2**	**2**	**-**	**-**	**-**	**-**	**1**	**-**	**1**	**1**	**-**	**1**	**1**	**-**	**-**

***3-High correlation; 2- Medium correlation; 1-Low correlation; '-' No correlation**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
MA6151	Mathematics-I	**Cl02.1:Describe** a clear idea of matrix algebra pertaining eigen values and eigen vectorsin addition dealing with quadratic forms.
		C102.2:Learn infinite series and their convergence and acquire the knowledge of with limitations.
		C102.3: Use infinite series approximations for solutions arising in mathematical modeling.
		C102.4: Explain and characterize phenomena which evolve around circle of curvature and envelope.
		C102.5: Extend the function of a one variable to several variables. Multivariable functions of real variables arise inevitable in engineering.
		C102.6:Expose to double and triple integration so that they can handle integrals of higher order which are applied m engineering field.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C102.1	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
Cl02.2	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
Cl02.3	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C102.4	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C102.5	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C102.6	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
Cl02	**3**	**2**	**1**	**1**	-	-	-	-	-	-	-	-	**1**	-	-

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REGULATION 2013

B.E. ECE-COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
PH6151	Engineering Physics-I	**C103.2:** Classify the Bravais lattices and different types of crystal structures and growth technique.
		C103.2: Demonstrate the properties of elasticity and heat transfer hrough objects.
		Cl03.3: Explain black body radiation, properties of matter waves and Schrodinger wave equations.
		C103.4: Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
		Cl03.5: Illustrate the acoustic requirements, production and application of ultrasonics.
		Cl03.6: Examine the characteristics of laser and optical fiber.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	P05	P06	P07	P08	P09	POIO	POii	P012	PSO I	PSO 2	PSO3
C103.1	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103.2	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103.3	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103.4	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103.5	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103.6	2	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C103	**2**	**2**	**1**	**1**	-	-	-	-	-	-	-	-	**1**	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
CY6151	Engineering Chemistry-I	**CI04.1:** Classify the polymers, different polymerization echniques and its uses.
		CI04.2: Describe the laws of thermodynamics, various hermodynamics functions and their significance.
		CI04.3: Explain the photo physical processes and the components of analytical instruments.
		CI04.4: Illustrate the phase diagrams, alloys and heat treatment processes
		CI04.5: Discuss the synthesis, characteristics and the applications of nano materials.
		CI04.6: Create the knowledge of nonmaterial's and their applications 111 fields like medicinal, electrical, electronic, chemical, etc.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	PO7	P08	P09	POIO	POil	PO12	PSO I	PSO 2	PSO3
CI04.1	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
CI04.2	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
CI04.3	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
CI04.4	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
C104.5	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
CI04.6	3	2	I	I	-	-	I	-	-	-	-	I	I	-	-
CI04	**3**	2	1	1	-	-	1	-	-	-	-	1	1	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6151	Computer Programming	**C105.1:Explain** the basic organization of computers, the number systems and write the pseudo code for algorithms and flow cha1t
		C105.2:Develop 'C' programming fundamentals, looping statements and solve problems.
		C105.3:Design 'C' programs for arrays and strings.
		C105.4: Use functions with pass by value and reference, pointers m programs.
		C105.5:Develop coding in 'C' for structures and unions with storage classes and pre-processor.
		C105.6:Design and execute C programs for simple applications.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C105.1	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105.2	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105.3	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105.4	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105.5	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105.6	3	2	I	I	I	-	-	-	-	-	-	I	I	-	-
C105	3	2	1	1	1	-	-	-	-	-	-	1	1	-	-

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REGULATION 2013
B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6152	Engineering Graphics	**C106.1:** Construct the conic sections and special curves and outline their practical applications and sketch the orthographic views from pictorial views and models.
		C106.2: Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.
		C106.3: Draw the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.
		C106.4: Design the sectional views of solids like cube, prisms, pyramids, cylinders & cones and Development of its lateral surfaces.
		C106.5: Apply the principles of isometric projection and perspective projection of simple solids and truncated prisms, pyramids, cone and cylinders.
		C106.6: Build an engineering component using Paper drawing as well as in CAD.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	P03	P04	P05	P06	P07	P08	P09	POIO	POii	P012	PSO I	PSO 2	PSO3
C106.1	3	2	I	I	-	I	-	-	-	I	-	-	I	-	-
C106.2	3	2	I	I	-	I	-	-	-	I	-	-	I	-	-
C106.3	3	2	I	1	-	I	-	-	-	I	-	-	I	-	-
C106.4	3	2	I	I	-	I	-	-	-	I	-	-	I	-	-
C106.5	3	2	I	I	-	I	-	-	-	I	-	-	I	-	-
C106.6	3	2	I	I	-	I	-	-	-	I	-	-	I	-	-
C106	**3**	**2**	**1**	**1**	**-**	**1**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**-**	**-**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6161	Computer Practices Laboratory	**C107.1:Prepare** data usmg MS-word & Excel to visualize graphs, charts in MS-Excel.
		C107.2:Outline the given problem using flowchatt and to program using Switch case & Control structures.
		C107.3:Develop the code using decision making & looping statements.
		C107.4:Apply passing parameters using Arrays & Functions.
		C107.5:Use structure and Union for a given database and to bring out the importance of Unions over structure.
		C107.6:Design and implement C programs for simple applications.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C107.I	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
C107.2	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
C107.3	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
C107.4	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
C107.5	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
CI07.6	2	2	I	I	-	-	-	-	I	-	-	I	I	-	-
C107	**2**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**1**	**-**	**-**

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REGULATION 2013

B.E. ECE-COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6162	Engineering Practices Laboratory	**C108.1:** Demonstrate wiring for a simple residential house, identify the ratings of various appliances like Fluorescent tube, incandescent lamp, etc.
		C108.2:Calculate the different Electrical quantities, measure the energy consumption using single phase energy meter.
		C108.3:Measure the resistance to earth of an electrical equipment, analyze AC signal parameters using CRO.
		C108.4:Verify the Truth tables of Logic gates AND, OR, EOR and NOT, generate clock signal using suitable gates.
		C108.5:Develop soldering in a PCB, measure ripple factor of Half Wave Rectifier and Full Wave Rectifier.
		C108.6:Provide exposure to the students with hands-on experience on various basic engineering practices in Civil and Mechanical Engineering.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO I	PSO 2	PSO3
CI08.1	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.2	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.3	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.4	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.5	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.6	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-
CI08.7	2	1	1	1	1	-	-	-	1	-	-	1	2	1	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6163	Physics and Chemistry Laboratory	**C109.1:** Apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials.
		C109.2:Evaluate the wavelength of spectral lines using spectrometer, the wavelength of laser, particle size, acceptance angle of an optical fiber using semiconductor diode laser and the thickness of a thin wire through interference fringes using Air wedge apparatus.
		C109.3:Appraise the velocity of sound and compressibility of the liquid using ultrasonic interferometer and thermal conductivity for bad conductors using Lee's disc apparatus.
		C109.4:Determine the **DO** content in water sample by winkler's method and molecular weight of polymer by Ostwald viscometer.
		C109.5:Find the strength of an acid using pH meter and conductometer.
		C109.6:Estimate the amount of weak and strong acids in a mixture by conductometer

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	P07	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
CI09.I	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.2	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.3	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.4	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.5	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.6	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
CI09.7	**3**	**2**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**

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II SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
HS6251	Technical English-II	**CII0.1:Speak** clearly, confidently, comprehensibly, and communicate with one or many listeners using appropriate communicative strategies.
		CI 10.2:Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently.
		CII0.3: Write cohesively and coherently and flawlessly avoiding grammatical errors, using a wide vocabulary range, organizing their ideas logically on a topic.
		CII0.4:Read different genres of texts adopting various reading strategies.
		CI 10.5: Listen/view and comprehend different spoken discourses/excerpts in different accents.
		CII0.6:Recognize, understand, and analyze the context within which language, information, and knowledge are produced, managed, organized, and disseminated.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
CII0.1	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0.2	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0.3	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0.4	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0.5	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0.6	2	2	I	I	-	-	I	-	I	I	-	I	I	-	-
CII0	**2**	**2**	**1**	**1**	-	-	**1**	-	**1**	**1**	-	**1**	**1**	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
MA6251	Mathematics-II	**CIII.1:Solve** ordinary differential equations that model most of the engineering problems.
		CIII.2:Acquaint the concepts of vector calculus-like Gradient, Divergence, Curl, Directional derivative, Irrotational vector and Solenoidal vector.
		CIII.3:Make to appreciate the purpose of using transforms to create new domain in which it is easier to handle the problem that is being investigated.
		CIII.4:Develop an Explaining of the standard techniques of complex variable and mapping so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of electric current.
		CIII.5:Expose to the concept of Cauchy's integral theorem, Taylor, Laurent expansions and Singular points.
		CIII.6:Use Application of residue theorem to evaluate complex integrals.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
CIII.1	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII.2	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII.3	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII.4	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII.5	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII.6	2	2	2	1	-	-	-	-	1	-	-	1	1	-	-
CIII	2	2	2	**1**	-	-	-	-	**1**	-	-	**1**	**1**	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
PH6251	Engineering Physics-II	**C112.2:** Illustrate classical and quantum free electron theory and calculate carrier concentration in metals.
		C112.2:Describe the carrier concentration in semi conductors and identify the p-type and n-type semi conductor using hall effect.
		Cl 12.3: Illustrate the special material properties such as magnetism.
		C112.4:Discuss the super conductivity.
		C112.5:Explain the dielectrics, types of polarization, losses and breakdown
		Cl 12.6:Discuss the properties, preparation and applications of metallic alloys, SMA, nano materials, NLO, Bio-materials.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	PO11	PO12	PSO 1	PSO 2	PS03
C112.1	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112.2	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112.3	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112.4	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112.5	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112.6	2	2	1	1	-	1	1	-	-	-	-	-	1	-	-
C112	**2**	**2**	**1**	**1**	-	**1**	**1**	-	-	-	-	-	**1**	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
CY6251	Engineering Chemistry-II	**C113.1**:Explain the problems of using hard water in boilers and he methods of treatment of water for boiler use.
		C113.2:Design the electrochemical cells and to identify the types of corrosion and the methods of preventing.
		C113.3:Illustrate the methods of harnessing energy from non-conventional energy sources.
		Cl 13.4:Classify various engineering materials and their importance.
		C113.5:Relate the significance of solid, liquid and gaseous fuels and to calculate the calorific values of fuels and the requirement of air for combustion in furnaces.
		Cl 13.6:Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C113.1	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113.2	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113.3	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113.4	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113.5	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113.6	2	2	I	I	-	-	-	-	-	-	-	I	I	-	-
C113	**2**	**2**	**1**	**1**	-	-	-	-	-	-	-	**1**	**1**	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6201	Electronic Devices	**C114.1:** Describe the principle and characteristics of semiconductor diode
		C114.2 : Analyze various transistor configurations
		C114.3: Construct large signal modeling and small signal modeling of a transistor.
		C114.4: Describe the principle of operation and characteristics of special Semiconductor diodes
		C114.5: Discuss the operation of various semiconductor photo devices and power electronic devices
		C114.6: Implement real time applications using electronic devices

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C114.1	2	2	-	-	-	-	-	-	-	-	-	-	1	-	-
C114.2	2	2	-	-	-	-	-	-	-	2	-	-	2	-	-
C114.3	3	3	-	-	-	-	-	-	-	-	-	-	2	-	-
C114.4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
C114.5	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
C114.6	3	2	2	-	-	2	-	-	-	2	-	-	1	-	-
C114	3	2	2	-	-	2	-	-	-	2	-	-	2	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EE6201	Circuit Theory	**Cl15.l:Apply** Kirchhoff s current and voltage law to simple circuits and Solve complex circuits using Mesh & Nodal Methods.
		C115.2:Apply Network theorems to solve simple and complex linear circuits.
		C115.3:Solve the Series and Parallel resonance circuit and analyze the performance of single & double tuned circuits.
		C115.4:Develop the Transient response of RLC circuits using Laplace Transform.
		C115.5:Explain the characteristics of two port networks.
		C115.6:Discuss three phase balanced and unbalanced star, delta network.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	PO6	PO7	POS	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C115.1	3	2	1	I	I	-	-	-	-	-	-	-	2	I	-
C115.2	3	2	I	I	I	-	-	-	-	-	-	-	2	I	-
C115.3	3	2	I	I	I	-	-	-	-	-	-	-	2	I	-
C115.4	3	2	I	I	I	-	-	-	-	-	-	-	2	I	-
C115.5	3	2	I	I	I	-	-	-	-	-	-	-	2	I	-
C115.6	3	2	I	I	I	-	-	-	-	-	-	-	2	I	-
C115	**3**	**2**	**1**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**1**	**-**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6262	Physics and Chemistry Laboratory	**Cl 16.1**:Appraise the Young's modulus of the beam by uniform and non uniform bending method, the moment of inertia and Rigidity Modulus for thin wire using Torsion Pendulum.
		C116.2:Use Poiseuille's method for determining the coefficient of viscosity of the liquid
		C116.3:Estimate the refractive index of spectral lines for determining the dispersive power of a prism circuit.
		C116.4:Determine the type, amount of alkalinity, hardness in a given water sample.
		C116.5:Evaluate the amount of copper using EDTA method.
		C116.6: Examine the potentiometric redox titration and Conductometric precipitation titration.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	PO5	PO6	PO7	POS	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C116.1	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.2	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.3	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.4	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.5	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.6	3	2	I	I	-	-	-	-	-	-	-	-	I	-	-
C116.7	3	2	1	1	-	-	-	-	-	-	-	-	1	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6211	Circuit and Devices Laboratory	C117.1:Construct the different types of feedback amplifier
		C117.2:Design RC & LC oscillator circuits for the given specifications
		Cll 7.3 :Construct the wave shaping circuits
		Cll 7.4: Design different types of Multivibrators
		C117.5: Simulate electronic circuits using SPICE.
		Cll 7.6: Determine the frequency response of tuned amplifiers.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C117.1	3	3	2	2	2	-	-	-	I	2	-	-	2	-	-
C117.2	3	3	2	2	2	-	-	-	I	2	-	-	2	2	-
C117.3	2	3	2	2	2	-	-	-	I	2	-	-	I	-	-
C117.4	2	3	2	2	2	-	-	-	I	2	-	-	I	-	-
C117.5	3	3	2	2	2	-	-	-	I	2	-	-	2	-	-
C117.6	3	3	2	2	2	-	-	-	I	2	-	-	2	2	-
C117.7	3	3	2	2	2	-	-	-	1	2	-	-	2	2	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

III SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
MA6351	Transforms and Partial Differential Equations	**C201.1:** Solve Linear Partial differential equations of first and second order
		C201.2: Associate the concepts of Fourier series expansion for even and odd functions
		C201.3: Apply the concepts of Fourier series in solving boundary value problems.
		C201.4: Discuss the Fourier transform, Fourier Sine and Cosine transform techniques.
		C201.5: Describe the concepts of Z-Transform techniques for discrete time systems
		C201.6: Apply transforms techniques in modeling physical processes like Heat Conduction, Communications systems and Electromagnetic Theory.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO 1	PSO2	PSO3
C201.1	3	2	2	1	-	-	-	-	1	-	-	-	2	-	-
C201.2	3	2	2	1	-	-	-	-	1	-	-	-	1	-	-
C201.3	3	2	2	1	-	-	-	-	1	-	-	-	1	-	-
C201.4	3	2	2	1	-	-	-	-	1	-	-	-	1	-	-
C201.5	2	2	2	1	-	-	-	-	1	-	-	-	1	-	-
C201.6	3	2	2	1	-	-	-	-	1	-	-	-	1	-	-
C201	3	2	2	1	-	-	-	-	1	-	-	-	1	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EE6352	Electrical Engineering and Instrumentation	**C202.1:** Apply knowledge on Constructional details, principle of operation performance of D.C Machines
		C202.2: Improve knowledge on Constructional details and working principle of transformers
		C202.3: Impart knowledge in Constructional details, principle of operation and performance of induction machines
		C202.4: Impart knowledge in Constructional details, principle of operation and performance of synchronous machines
		C202.5: Analyze about the basic measurement and instrumentation based devices.
		C202.6: Impart knowledge in the relevance of digital instruments in measurements.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO 1	PSO 2	PSO3
C202.1	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202.2	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202.3	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202.4	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202.5	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202.6	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-
C202	3	2	1	1	-	-	-	-	-	-	-	1	1	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6301	Object Oriented Programming and Data Structures	C203.1:Leam the familiarity with algorithms
		C203.2:Analyze the performance of algorithms
		C203.3:Describe to implement 20 array operations
		C203.4:Implement the stack and queue using arrays
		C203.5:Familiar with programming in C++
		C203.6:Explain the Implementation of quick sort and binary tree

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POi1	PO12	PSO 1	PSO2	PSO3
C203.1	3	2	2	2	2	-	1	1	1	-	-	I	1	I	-
C203.2	2			2	2	-	1	1	1	-	-	1	2	1	-
C203.3	2	3		2	2	-	1	1	1	-	-	1	1	1	-
C203.4	3			2	2	-	1	I	1	-	-	1	1	1	-
C203.5	3			2	2	-	-	-	-	-	-	I	1	1	-
C203.6			3	2	2	-	-	-	-	-	-	1	1	1	-
C203	3	3	3	2	2	-	I	I	I	-	-	1	1	1	-

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REGULATION 2013

B.E. ECE-COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6302	Digital Electronics	**C204.1:** Analyze different methods used for simplification of Boolean expressions.
		C204.2: Design and implement Combinational circuits
		C204.3: Explain and implement sequential circuit
		C204.4: Write simple HDL codes for the circuits
		C204.5:Evaluate and implement synchronous and asynchronous sequential circuits.
		C204.6: Able to learn about memory devices

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	POII	P012	PSO I	PS02	PSO 3
C204.1	2	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204.2	3	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204.3	3	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204.4	3	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204.5	2	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204.6	3	2	1	1	-	-	-	-	-	1	-	1	3	2	1
C204	3	2	1	1	-	-	-	-	-	1	-	1	3	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6303	Signals and Systems	**C205.1:** Able to describe the mathematical operations of signals
		C205.2:. Analyze the Continuous time signals using Transforms
		C205.3: Examine the Continuous time LTI systems using Transforms
		C205.4: Illustrate the effect of aliasing through Baseband sampling theorem
		C205.5. Analyze the Discrete time signals using Transforms
		C205.6: Demonstrate the Discrete time LTI systems using Transforms.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	P05	P06	P07	P08	P09	POIO	PO11	P012	PSO 1	PS02	PS03
C205.1	3	2	2	2	-	-	-	-	-	1	-	1	2	2	2
C205.2	3	2	2	2	-	-	-	-	-	1	-	1	2	2	2
C205.3	3	2	2	2	-	-	-	-	-	1	-	1	2	2	1
C205.4	3	2	2	2	-	-	-	-	-	1	-	1	2	2	2
C205.5	3	2	2	2	-	-	-	-	-	1	-	1	2	2	2
C205.6	3	2	2	2	-	-	-	-	-	1	-	1	2	2	2
C205	**3**	**2**	**2**	**2**	**-**	**--**	**-**	**-**	**-**	**1**	**-**	**1**	**2**	**2**	**2**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6304	Electronic Circuits- I	**C206.1:.** Discuss transistor bias stability and various type of biasing BJT,FET, MOSFET and calculate the stability factor, design various types of BJT,FET
		C206.2: Describe mid band analysis of small signal amplifier-single stage and multistage
		C206.3: Plot the frequency response of amplifiers-BJT,FET
		C206.4: Able to now various types of power amplifiers and hence find its efficiency.
		C206.5:Represent the features of power supplies and rectifiers, voltage regulator, power control using SCR.
		C206.6:Able to understand AGC Using FET understand AGC Using FET

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C206.1	3	2	2	-	-	-	-	-	-	1	-	2	1	-	-
C206.2	3	2	2	2	-	-	-	-	-	1	-	2	2	2	-
C206.3	3	2	2	-	-	-	-	-	-	1	-	2	2	2	-
C206.4	3	2	2	2	-	-	-	-	-	1	-	2	2	2	-
C206.5	3	2	2	2	-	-	-	-	-	1	-	2	2	2	2
C206.6	3	2	2	2	-	-	-	-	-	1	-	2	1	1	-
C206	3	2	2	2	-	-	-	-	-	1	-	2	2	2	2

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6311	Analog And Digital Circuits Laboratory	**C207.1:** Determine the frequency response of single stage amplifiers
		C207.2: Determine the frequency response of cascade and cascade amplifiers.
		C207.3:Implement amplifier circuits us111g Spice simulation software.
		C207.4:Implement various counters using Flip-flops.
		C207.5:Realize shift registers using Flip-flops
		C207.6:Exhibit Ethical principles in Engineering practices

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C207.1	?	2	2	2	-	-	-	-	2	?	-	2	2	-	-
C207.2	?	2	2	2	-	-	-	-	2	?	-	2	2	-	-
C207.3	3	2	2	2	-	-	-	-	2	3	-	2	2	-	-
C207.4	2	2	2	2	-	-	-	-	2	?	-	2	I	-	-
C207.5	2	2	2	2	-	-	-	-	2	?	-	2	I	-	-
C207.6	2	2	2	2	-	-	-	-	2	3	-	2	-	-	-
C207	3	2	2	2	-	-	-	-	2	3	-	2	2	-	-

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6312	Oops and Data Structures Laboratory	**C208.1:** Implementation of two dimensional array operations.
		C208.2: Implementation of stack and queue using array
		C208.3:Demonstrate familiarity with major algorithms and data structures.
		C208.4:Apply good programming design methods for program development
		C208.5:Apply the different data structures for implementing solutions to practical problems
		C208.6: Implementation of quick sort and binary tree

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C208.1	2	2	2	-	-	-	-	-	2	2	-	2	I	-	-
C208.2	3	2	2	2	2	-	-	-	2	2	-	2	I	2	-
C208.3	3	2	2	2	2	-	-	-	2	2	-	2	I	2	-
C208.4	3	2	2	2	2	-	-	-	2	2	-	2	I	2	-
C208.5	3	2	2	2	2	-	-	-	2	2	-	2	I	2	-
C208.6	2	I	2	2	2	-	-	-	2	2	-	2	I	I	-
c2os	**3**	2	**2**	2	**2**	-	-	-	**2**	**2**	-	**2**	**2**	2	-

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IV SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
MA6451	Probability And andom Processes	**C209.1:** Analyze mean variance and MGF of various distribution
		C209.2: Find stationary , WSS,SSS process
		C209.3:Find relation between power spectral and spectrum
		C209.4: Find cross correlation , Auto correlation
		C209.5:Find correlation regression for two dimensional random variable
		C209.6:Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO 1	PSO2	PSO3
C209.1	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209.2	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209.3	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209.4	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209.5	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209.6	3	2	I	-	-	-	-	-	-	I	-	2	-	-	-
C209	3	2	1	-	-	-	-	-	-	1	-	2	-	-	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6401	Electronic Circuits II	**C210.1:** Able to understand the advantages and method of analysis of feedback amplifiers
		C210.2:Able to understand analysis and design of LC and RC Oscillators
		C210.3:Able to understand various types of tuned amplifiers
		C210.4:Analysis integrator, Differentiator, Clippers , Clampers and multivibrators
		C210.5:Learn various types of blocking Oscillators and time base circuits
		C210.6:.Learn current and voltage time base generator

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO I	PSO2	PSO3
C210.1	3	2	2	2	-	-	-	-	-	-	-	I	I	2	1
C210.2	3	.2	2	2	-	-	-	-	-	-	-	I	2	2	I
C210.3	3	2	2	2	-	-	-	-	-	-	-	I	2	2	1
C210.4	3	2	2	2	-	-	-	-	-	-	-	I	2	2	I
C210.5	3	2	2	2	-	-	-	-	-	-	-	I	2	2	I
C210.6	3	2	2	2	-	-	-	-	-	-	-	I	I	2	1
C210	3	2	2	2	-	-	-	-	-	-	-	1	2	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6402	Communication Theory	**C211.1:** Describe the concepts of amplitude modulation system
		C211.2: Summarize the concepts of angle modulation system
		C211.3: Solve communication engineering problems by applying he concepts of random process.
		C211.4: Compare the noise performance of AM and FM systems
		C211.5: Analyze the principles of Sampling and quantization
		C211.6: Design the PCM systems

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	P03	PO4	POS	PO6	PO7	PO8	PO9	POI0	POii	PO12	PSO I	PSO2	PSO3
C211.1	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211.2	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211.3	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211.4	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211.5	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211.6	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1
C211	3	2	2	1	-	-	-	-	-	1	-	2	2	1	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6403	Electromagnetic Fields	**C212.1:Apply** vector calculus to electric-magnetic fields in different engineering situations.
		C212.2:Compute electric field and potential for different configurations.
		C212.3:Describe the behavior of dielectric and magnetic materials.
		C212.4:Solve problems requiring estimation of magnetic field quantities based on Amperes and Biot-Savart law
		C212.5:Examine the coupling between electric and magnetic fields through Maxwell's equations
		C212.6:Describe wave propagation in lossless and in lossy media

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C212.1	3	3	2	1	-	-	-	-	-	1	-	2	3	1	1
C212.2	3	3	2	1	-	-	-	-	-	1	-	2	3	1	1
C212.3	3	3	2	1	-	-	-	-	-	1	-	2	2	1	1
C212.4	3	3	2	1	-	-	-	-	-	1	-	2	3	1	1
C212.5	3	3	2	1	-	-	-	-	-	1	-	2	2	1	1
C212.6	3	3	2	1	-	-	-	-	-	1	-	2	2	1	1
C212	3	3	2	1	-	-	-	-	-	1	-	2	2	1	1

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REGULATION 2013

B.E. ECE- COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6404	Linear Integrated Circuits	**C213.1:Describe** the characteristics of operational amplifiers.
		C213.2:Design the various linear and non-linear applications of op-amp.
		C213.3:Apply the multiplier IC's and PLL in various applications
		C213.4:Compare the specifications of ADC and DAC.
		C213.5:Design oscillators and voltage regulators
		C213.6:Infer the applications of special function IC's.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C213.1	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213.2	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213.3	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213.4	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213.5	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213.6	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1
C213	3	2	1	1	-	-	-	-	-	1	-	2	2	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6411	Circuit and Simulation Integrated Laboratory	**C214.1:** Construct the different types of feedback amplifiers.
		C214.2: Implement RC & LC oscillator circuits for the given soecifications.
		C214.3: Construct the wave shaping circuits
		C214.4: Implement the different types of Multi vibrators
		C214.5: Simulate electronic circuits using SPICE
		C214.6: Determine the frequency response of tuned amplifiers

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C214.1	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214.2	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214.3	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214.4	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214.5	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214.6	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-
C214	3	3	2	2	2	-	-	-	-	1	-	2	3	2	-

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6412	Linear Integrated Circuits Laboratory	**C215.1:** Verify the operation of circuits using various Analog IC's.
		C215.2: Discuss the working of various function generating circuits using discrete elements and SPICE software.
		C215.3: Design Instrumentation amplifier using OP AMP and Frequency Multiplier PLL
		C215.4: Verify working of Multi vibrators using Analog IC's
		C215.5: Build first and second order practical active filters using Analog IC's
		C215.6: Test *AID* and D/A convertors, Multipliers and Modulators using SPICE software.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POil	PO12	PSO I	PSO2	PSO3
C215.1	2	2	2	2	2	-	-	-	2	2	-	2	2	I	2
C215.2	3	2	2	2	2	-	-	-	2	2	-	2	2	I	I
C215.3	3	2	2	2	2	-	-	-	2	2	-	2	2	2	I
C215.4	3	2	2	2	2	-	-	-	2	2	-	2	2	I	I
C215.5	3	2	2	2	2	-	-	-	2	2	-	2	2	I	I
C215.6	3	2	2	2	2	-	-	-	2	2	-	2	2	I	I
C215	**3**	**2**	**2**	**2**	**2**	-	-	-	**2**	**2**		**2**	**2**	I	I

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6461	Electrical Engineering and Control System Laboratory	**C216.1:Model** a control system by its transfer function.
		C216.2:Describe methods to determine time and frequency response of a control system.
		C216.3: Describe methods to determine frequency response of a control system
		C216.4:Design Compensation techniques to stabilize control system.
		C216.5:. Perform state variable analysis for control systems
		C216.6:. Model a control system by its transfer function

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO2	PSO3
C216.I	3	2	1	1	-	-	-	-	1	I	-	1	I	I	-
C216.2	3	2	1	1	-	-	-	-	1	1	-	1	2	2	-
C216.3	3	2	1	1	-	-	-	-	1	1	-	1	2	2	-
C216.4	3	2	1	1	-	-	-	-	1	1	-	1	2	2	-
C216.5	3	2	1	I	-	-	-	-	1	1	-	1	2	2	-
C216.6	3	2	1	1	-	-	-	-	1	1	-	1	2	2	-
C216	3	2	1	1	-	-		-	1	1	-	1	2	**2**	-

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VSEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6501	Digital Communication	**C301.1:**Describe the concepts of sampling and quantization
		C301.2:Compare the various source coding techniques
		C301.3:Describe the baseband transmission schemes
		C301.4:Illustrate the different modulation schemes and equalization techniques
		C301.S:Examine the PSD and BER of various modulation schemes
		C301.6:Generate different error control codes

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POtO	POii	PO12	PSO I	PSO 2	PSO3
C301.1	3	3	2	I	I	-	-	-	-	2	-	3	2	I	-
C301.2	3	3	2	I	I	-	-	-	-	2	-	3	2	I	-
C301.3	3	3	2	I	I	-	-	-	-	2	-	3	2	2	-
C301.4	3	3	2	I	I	-	-	-	-	2	-	3	2	I	-
C301.S	3	3	2	I	I	-	-	-	-	2	-	3	2	I	-
C301.6	3	3	2	I	I	-	-	-	-	2	-	3	2	I	-
C301	3	3	2	1	1	-	-	-	-	2	-	3	2	1	-

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6502	Principles of Digital Signal Processing	**C302.1:Compute** OFT for a given sequence
		C302.2:Compare the Discrete Fourier Transform (OFT) and Fast Fourier transform (FFT).
		C302.3:Design IIR digital filters.
		C302.4:Realize FIR digital filters for various specifications.
		C302.5:Illustrate various types of finite word length effects.
		C302.6:Summarize the architecture, addressing modes and instruction sets of DSP processors.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	POii	P012	PSO I	PSO 2	PS03
C302.1	3	2	2	1	-2	-	-	-	-	2	-	2	1	2	-
C302.2	3	2	2	1	2	-	-	-	-	2	-	2	2	3	-
C302.3	3	2	2	1	2	-	-	-	-	2	-	2	2	2	-
C302.4	3	2	2	1	2	-	-	-	-	2	-	2	2	2	-
C302.5	3	2	2	1	2	-	-	-	-	2	-	2	2	2	-
C302.6	3	2	2	1	2	-	-	-	-	2	-	2	1	2	-
C302	3	2	2	1	2	-	-	-	-	2	-	2	2	2	-

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6503	Transmission Lines and Wave Guides	**C303.1:** Discuss the various types of transmission lines and propagation of signals.
		C303.2: Examine signal propagation for the given specifications
		C303.3: Explain impedance transformation and matching techniques.
		C303.4: Design transmission lines with stub matching using Smith chart.
		C303.5: Derive various types of passive filters.
		C303.6: Derive the radio propagation in guided systems and cavity resonator.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	P03	P04	POS	P06	P07	POS	P09	POIO	POii	PO12	PSO I	PSO 2	PSO3
C303.1	2	2	2	2	-	-	-	-	-	1	-	1	-	-	2
C303.2	∴	2	2	2	-	-	-	-	-	1	-	1	-	-	2
C303.3	2	2	2	2	-	-	-	-	-	1	-	1	-	-	2
C303.4	3	2	2	2	-	-	-	-	-	1	-	1	-	-	2
C303.5	∴	2	2	2	-	-	-	-	-	1	-	1	-	2	2
C303.6	∴	2	2	2	-	-	-	-	-	1	-	1	-	-	2
C303	3	2	2	2	-	-	-	-	-	1	-	1	-	2	2

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6351	Environmental Science and Engineering	**C304.1:Summarize** the values, threats, conservation of biodiversity and ecosystems
		C304.2:Identify various pollution control methods and waste management
		C304.3:Associate the effects of Natural resource exploitation on environment
		C304.4:Classify the various environmental laws & regulation for environmental sustainability
		C304.5:Explain the effect of Human population on environment
		C304.6:Discuss scientific, technological, economic and social solutions to environmental problems

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO 1	PSO2	PSO3
C304.1	2	I	I	I	-	2	-	I	-	2	I	2	I	I	I
C304.2	2	I	I	I	-	2	3	I	-	2	I	2	I	I	I
C304.3	2	I	I	I	-	2	2	I	-	2	I	2	I	I	I
C304.4	2	I	I	I	-	2	2	I	-	2	I	2	I	I	I
C3045	2	I	I	I	-	2	2	I	-	2	I	2	I	I	I
C304.6	2	I	I	I	-	2	2	I	-	2	I	2	I	I	I
C304	2	I	I	I	-	2	2	I	-	2	I	2	I	I	I

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6504	Microprocessor and Microcontroller	**C305.1:Explain** the architecture and instruction set of Microprocessor
		C305.2:Discuss about System Bus Structure for Multiprocessor Configuration
		C305.3:Infer the functions of various interfacing IC'.
		C305.4:Explain the architectures and instruction set of Microcontroller
		C305.5:Illustrate the functions of various interfacing devices with Microcontro lier
		C305.6:Build an assembly language program for interfacing

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	P03	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C305.1	",	2	2	2	-	-	-	-	-	2	-	2	1	-	-
C305.2	",	2	2	2	-	-	-	-	-	2	-	2	2	-	-
C305.3	",	2	2	2	-	-	-	-	-	2	-	2	1	-	2
C305.4	3	2	2	2	-	-	-	-	-	2	-	2	2	-	-
C305.5	",	2	2	2	-	-	-	-	-	2	-	2	2	-	2
C305.6	",	2	2	2	-	-	-	-	-	2	-	2	2	-	-
C305	3	2	2	2	-	-	-	-	-	2	-	2	2	-	2

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6511	Digital Signal Processing Laboratory	**C306.1:** Plot the different types of signals
		C306.2: Analyse frequency response for the given system
		C306.3: Implement MultiMate filters in DSP
		C306.4: Apply adaptive filters in various applications of DSP
		C306.5: Implement DSP systems using DSP processor.
		C306.6: Develop DSP based systems for real-time applications

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C306.1	3	2	2	2	2	-	-	-	2	2	-	2	2	1	1
C306.2	3	2	2	2	2	-	-	-	2	2	-	2	2	1	1
C306.3	3	2	2	2	2	-	-	-	2	2	-	2	2	1	3
C306.4	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C306.5	3	2	2	2	2	-	-	-	2	2	-	2	2	1	1
C306.6	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C306	**3**	**2**	**2**	**2**	**2**	-	-	-	**2**	**2**	-	**2**	**2**	1	1

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6512	Communication Systems Laboratory	**C307.1:** Practice analog and digital modulation Schemes
		C307.2: Implement sampling theorem and Time Division Multiplexing
		C307.3: Implement Line Coding Schemes
		C307.4: Simulate Various modulation Schemes using Mat lab.
		C307.5: Investigate the performance of Communication systems
		C307.6: Test Error Control Coding Schemes in Communication System

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO2	PSO3
C307.1		3			2	-	-	-	2	2	-	2	2	1	
C307.2				3	2	-	-	-	2	2	-	2	2	1	
C307.3					2	-	-	-	2	2	-	2	2	1	3
C307.4					2	-	-	-	2	2	-	2	2	1	
C307.5					2	-	-	-	2	2	-	2	2	1	2
C307.6					2	-	-	-	2	2	-	2	2	1	3
C307	3	3	3	3	2	-	-	-	2	2	-	2	2	1	3

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6513	Microprocessor and Microcontroller Laboratory	**C308.1:** Write and execute ALP Program using Microprocessor
		C308.2: Interface different I/Os with microprocessor
		C308.3: Generate waveforms using Microprocessors
		C308.4: Execute Programs in 8051 Microcontroller
		C308.5: Develop a program to communicate Microprocessor with Personal Computer
		C308.6: Use a combination of hardware and software to solve a real time problem

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO I	PSO2	PSO3
C308.1	3	1	2	2	2	-	-	-	2	2	2	2	I	I	I
C308.2			2	2	2	-	-	-	2	2	2	2	I	I	I
C308.3	3	3	2	2	2	-	-	-	2	2	2	2	2	I	I
C308.4		I	2	2	2	-	-	-	2	2	2	2	2	I	I
C308.5	3		2	2	2	-	-	-	2	2	2	2	2	I	I
C308.6	3	3	2	2	2	-	-	-	2	2	2	2	2	I	I
C308	3	3	2	2	2	-	-	-	2	2	2	2	2	I	I

*3-High correlation; 2- Medium correlation; 1-Low correlation; '-' No correlation

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VI SEMESTER

Course Code	Course Name	Course Outcome (CO) Students will be able to
MG6851	Principles of Management	**C309.1:** Summarize the evolution of management thoughts and various challenges of managerial activities in a global
		C309.2: Explain the types of Planning and Decision making at various levels management in the Organizations..
		C309.3: Discuss various types of Organization structure.
		C309.4: List out the steps in Staffing process and stages in Career development.
		C309.5: Explain the elements in Direction.
		C309.6: Generalize various Controlling techniques to maintain standards in Organizations.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO3
C309.1	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309.2	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309.3	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309.4	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309.5	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309.6	3	2	2	2	-	2	-	2	2	2	2	I	2	2	1
C309	3	2	2	2	-	2	-	2	2	2	2	1	2	2	2

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Course Code	Course Name	Course Outcome (CO) Students will be able to
CS6303	Computer Architecture	**C310.1:** Identify and describe the major components of computer system
		C310.2: Distinguish various multiplication and division algorithms
		C310.3: Interpret and apply various addressing modes
		C310.4: Analyze pipelined control units and various types of hazards in the instructions
		C310.5: Compare properties of shared memory and distributed multiprocessor systems and cache coherency protocols.
		C310.6: Analyze the performance of memory using performance equation in a digital computer

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C310.1	2	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310.2	2	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310.3	2	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310.4	2	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310.5	3	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310.6	2	2	2	2	-	-	-	-	-	1	-	1	1	1	2
C310	3	2	2	2	-	-	-	-	-	1	-	1	1	1	2

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Course Code	Course Name	Course Outcome (CO) Students will be able to
CS6551	Computer Networks	**C311.1:** Describe the Internet architecture and link layer services
		C311.2: Compare various media access and internetworking protocols
		C311.3: Apply various routing protocols and algorithms for a given network along with IP addresses
		C311.4: Demonstrate the flow of information from one process to another process in the network
		C311.5: Summarize the various Application requirements
		C311.6: Discuss the various application layer protocols

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	POtt	P012	PSO I	PSO 2	PS03
C311.1	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311.2	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311.3	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311.4	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311.5	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311.6	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1
C311	3	2	2	2	-	-	-	-	-	2	-	2	2	1	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6601	VLSI Design	**C312.1:** Analyze the basic concepts of linear and Non-linear behaviour of MOS transistors.
		C312.2: Realize the various logic gates and functions using different logic families.
		C312.3: Design of memory elements in sequential circuits.
		C312.4: Describe the concepts of sequential circuits with different clocking schemes.
		C312.5: Analyze the critical path delay of various arithmetic building blocks.
		C312.6: Differentiate between Full custom and Semi-custom IC design.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C312.1	2	2	2	2	-	-	-	-	-	1	-	2	1	-	2
C312.2	"	2	2	2	-	-	-	-	-	1	-	2	2	-	2
C312.3	2	2	2	2	-	-	-	-	-	1	-	2	2	-	2
C312.4	2	2	2	2	-	-	-	-	-	1	-	2	1	-	2
C312.5	"	2	2	2	-	-	-	-	-	1	-	2	2	-	2
C312.6	2	2	2	2	-	-	-	-	-	1	-	2	1	-	2
C312	3	2	2	2	-	-	-	-	-	1	-	2	2	-	2

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6602	Antenna and Wave Propagation	**C313.1:** Illustrate the radiation characteristics of antennas
		C313.2: Determine the field components of aperture and slot antennas
		C313.3: Distinguish the radiation pattern of end fire and broad side arrays
		C313.4: Illustrate the principles of special antennas
		C313.5: Explain the various antenna measurement techniques
		C313.6: Discuss the characteristics of radio-wave propagation with respect to atmospheric layers

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C313.1	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313.2	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313.3	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313.4	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313.5	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313.6	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1
C313	3	2	2	2	-	-	-	-	-	1	-	2	2	1	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6001	Medical Electronics	**C314.1:** Discuss the characteristics of the bioelectric signals
		C314.2: Describe the measurement techniques for various non-electrical parameters.
		C314.3: Illustrate the working of human assist devices
		C314.4: Discuss the operation of diathermy equipment.
		C314.5: Describe the principle of Bio -Telemetry.
		C314.6: Explain the recent trends in diagnosis & Therapy

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P.03	P04	POS	P06	P07	POS	P09	POIO	PO11	P012	PSO I	PS02	PSO 3
C314.1	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314.2	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314.3	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314.4	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314.5	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314.6	3	2	1	1	-	-	-	-	-	1	-	1	1	1	1
C314	**3**	**2**	**1**	**1**	-	-	-	-	-	**1**	-	**1**	**1**	**1**	**1**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6611	Computer Networks Laboratory	**C315.1:** Build connection between desktop computers using Network topologies
		C315.2: Demonstrate Flow control and Error control Techniques
		C315.3: Develop Programs for client-server applications using sockets
		C315.4: Implement various routing algorithms for the given network
		C315.5: Implement Encryption/Decryption algorithm and various Error Detecting/Correcting codes
		C315.6: Apply CSMA CD/CA protocols and various Congestion Control Algorithms for given networks using simulation tool.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C315.1	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315.2	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315.3	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315.4	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315.5	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315.6	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C315	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6612	VLSI Design Laboratory	**C316.1:** Develop the HDL code for basic as well as advanced digital Integrated circuits
		C316.2: Import the logic modules into FPGA Boards.
		C316.3 Perform the Synthesization, Place and Route the digital IPs..
		C316.4: Design, Simulate and Extract the layouts of Analog IC Blocks using EDA tools
		C316.5: Simulate the modern chip manufacturing software tools.
		C316.6: Execute and Extract the layouts of basic modules using EDA tool.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO 3
C316.t	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C316.2	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C316.3	3	2	2	2	2	-	-	-	2	2	-	2	2	2	-
C316.4	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C316.5	3	2	2	2	2	-	-	-	2	2	-	2	2	2	-
C316.6	3	2	2	2	2	-	-	-	2	2	-	2	2	2	-
C316	**3**	**2**	**2**	**2**	**2**	-	-	-	**2**	**2**	-	**2**	**2**	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6674	**Communication and Soft skills Laboratory Based**	**C317.1:** Get rid of stage fear and answer the questions arise from the audience.
		C317.2: Communicate confidently and fluently.
		C317.3: Comprehend and prepare reports efficiently.
		C317.4:Successfully answer the questions in Interview
		C317.5:Take International Examination such as IELTS and TOFEL
		C317.6:Make Presentations and participate in Group Discussions

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	POii	P012	PSO I	PS02	PS03
C317.I	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317.2	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317.3	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317.4	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317.5	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317.6	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-
C317	-	-	-	-	-	-	-	-	2	2	-	2	-	-	-

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VII SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6701	RF and Microwave Engineering	**C401.1:** Analyze the S Parameters of two port networks.
		C401.2: Design impedance matching networks for RF amplifiers.
		C401.3: Analyze the S-parameters of passive microwave devices.
		C401.4: Describe the working principle of active microwave components.
		C401.5: Compare the efficiency of microwave amplifiers and oscillators.
		C401.6: Describe microwave signal measurement techniques.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	P03	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO2	PSO3
C401.1	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401.2	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401.3	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401.4	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401.5	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401.6	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1
C401	3	2	2	1	-	-	-	-	-	2	-	2	2	1	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6702	Optical Communication and Networks	**C402.1:** Describe the basic principles of optical fiber communication
		C402.2: Summarize the different kind of signal degradation factors in optical fiber communication
		C402.3: Discuss the Characteristics of various fiber optical sources and detectors
		C402.4: Explain the various optical parameter measurement techniques
		C402.5: Compare the performance of optical networks based on Link Power budget and Rise Time budget
		C402.6: Compare the performance of various optical networks

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO I	PSO 2	PSO3
C402.1	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402.2	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402.3	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402.4	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402.5	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402.6	3	2	1	1	-	-	-	-	-	1	-	2	2	1	1
C402	**3**	**2**	**1**	**1**	-	-	-	-	-	**1**	-	**2**	**2**	**1**	**1**

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6703	Embedded and Real Time Systems	**C403.1:** Explain the different embedded system technologies.
		C403.2: Describe the architecture and programming of ARM processor
		C403.3: Develop and analyze software modules for embedded system
		C403.4: Differentiate between the general purpose operating system and the real time operating system.
		C403.5: Apply system design flow to develop embedded systems
		C403.6: Implement real-time applications using embedded-system concepts

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C403.1	3	2	2	2	-	-	-	-	-	2	-	2	-	-	2
C403.2	3	2	2	2	-	-	-	-	-	2	-	2	-	-	2
C403.3	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C403.4	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C403.5	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C403.6	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C403	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6004	Satellite Communication	**C404.1:** Analyze the satellite orbit
		C404.2: Analyze the Earth and Space segment
		C404.3: Solve signal to noise ratio of earth segment
		C404.4:.Comparison of multiple access
		C404.5: Analyze various methods of satellite access
		C404.6: Design various satellite application

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO 1	PSO2	PSO3
C404.1	'_';	'_';	3	1	-	-	-	-	-	'_';	-	'_';	2	2	1
C404.2	'_';	'_';	"_	1	-	-	-	-	-	3	-	'_';	2	2	1
C404.3	'_';	"_	3	1	-	-	-	-	-	'_';	-	"_	2	2	1
C404.4	'_';	3	"_	1	-	-	-	-	-	'_';	-	3	2	2	1
C404.5	3	"_	"_	1	-	-	-	-	-	3	-	3	2	2	1
C404.6	'_';	3	'_';	1	-	-	-	-	-	3	-	3	2	2	1
C404	3	3	3	1	-	-	-	-	-	3	-	"_	2	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6011	Electro Magnetic Interference and Compatibility	**C405.1:** Describe the electromagnetic interference environment and coupling Principles, Different sources of EMI and mitigation technique
		C405.2: Explain the basic issues of interference compatibility and Analyze different EMI coupling principles and its impact
		C405.3: Apply coupling methods for different EM problems and Calculate the effects of shielding and grounding in a circuit environment
		C405.4: Describe the electronic systems that function without error or problem related to electromagnetic compatibility
		C405.5: Describe the characteristics of EMI filters and components and
		C405.6: Explain various test methods and instruments of EMI

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C405.1	2	2	2	2	-	-	-	-	-	2	-	1	2	2	1
C405.2	2	2	2	2	-	-	-	-	-	2	-	1	2	2	1
C405.3	3	2	2	2	-	-	-	-	-	2	-	1	2	2	1
C405.4	3	2	2	2	-	-	-	-	-	2	-	1	2	2	1
C405.5	3	2	2	2	-	-	-	-	-	2	-	1	2	2	1
C405.6	3	2	2	2	-	-	-	-	-	2	-	1	2	2	3
C405	3	2	2	2	-	-	-	-	-	2	-	1	2	2	2

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6016	Opto Electronic Devices	**C406.1:** Analyze design of optoelectronic integrated circuits .
		C406.2: Describe the basics of opto devices and circuits
		C406.3: Develop and analyze optoelectronics detective devices
		C406.4: Observe basics of solid state physics
		C406.5: Apply system design method to analyze
		C406.6: Develop basic display device

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POii	PO12	PSO I	PSO2	PSO3
C406.1		2	2	2	-	-	-	-	-	2	-	2	1	1	2
C406.2	3	2	2	2	-	-	-	-	-	2	-	2	1	1	2
C406.3		2	2	2	-	-	-	-	-	2	-	-	1	1	-
C406.4		2	2	2	-	-	-	-	-	2	-	2	2	2	2
C406.5		2	2	2	-	-	-	-	-	2	-	2	2	2	2
C406.6		2	2	2	-	-	-	-	-	2	-	2	2	2	2
C406	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6711	Embedded Laboratory	**C407.1:** Summarize about ARM Tiva Launch-pad TM4C123
		C407.2: Experiment with *AID* and *DIA* convertors using ARM system
		C407.3: Implement communication protocols with ARM
		C407.4: Compare the interrupt performance of ARM and FPGA
		C407.5: Develop C programs for interfacing keyboard, display, motor and sensor.
		C407.6: Demonstrate a mini project using embedded system

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	PO2	PO3	PO4	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO 2	PSO 3
C407.I	3	2	2	2	2		-	-	2	2	-	2	2	4	1
C407.2	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1
C407.3	3	2	2	2	2	-	-	-	2	2	-	2	2	2	I
C:407.4	3	2	2	2	2	-	-	-	2	2	-	2	2	2	I
C407.5	3	2	2	2	2	-	-	-	2	2	-	2	2	2	I
C407.6	3	2	2	2	2	-	-	-	2	2	-	2	2	2	I
C407	3	2	2	2	2	-	-	-	2	2	-	2	2	2	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6712	Optical and Microwave Laboratory	**C408.1:** Illustrate the characteristics of microwave components
		C408.2: Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber
		C408.3: Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
		C408.4: Examine the Wireless Channel Characteristics and the performance of Wireless Communication System
		C408.5: Calculate different losses in fiber optic cables
		C408.6: Determine modes and acceptance angle of fiber optic cables

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO3
C408.1	"	2	2	2	-	-	-	-	2	2	-	2	2	1	2
C408.2	3	2	2	2	-	-	-	-	2	2	-	2	2	1	3
C408.3	3	2	2	2	-	-	-	-	2	2	-	2	2	1	2
C408.4	"	2	2	2	-	-	-	-	2	2	-	2	2	1	2
C408.5	3	2	2	2	-	-	-	-	2	2	-	2	2	1	2
C408.6	3	2	2	2	-	-	-	-	2	2	-	2	2	1	2
C408	3	2	2	2	-	-	-	-	2	2	-	2	2	1	2

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VIII SEMESTER

REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6801	Wireless Communication	**C409.1:** Explain the Characteristics of fading in wireless channels
		C4.09.2: Describe the fundamentals of Cellular Architecture
		C409.3: Use various signaling schemes for wireless communication channels
		C409.4: Compare the performance of channel using various propagation models
		C409.5: Analyze the various mitigation techniques to address fading and interference in multipath propagation.
		C409.6: Design MIMO Systems in fading and non fading channels

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	PO6	PO7	PO8	PO9	POIO	POii	PO12	PSO I	PSO2	PSO 3
C409.1	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409.2	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409.3	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409.4	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409.5	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409.6	3	2	2	2	-	-	-	-	-	2	-	2	2	2	2
C409	3	2	2	2	-	-	-	--	-	2	-	2	2	2	2

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6802	Wireless Networks	**C410.1:** Explain WIMAX and Wireless LAN protocols and standards.
		C410.2: Describe IP and routing strategies.
		C410.3: Infer the TCP enhancements for wireless protocols.
		C410.4: Explain Wireless WAN architectures, protocols and its features.
		C410.5: Analyze the latest wireless protocols for the problems associated with Wireless Networks.
		C410.6: Interpret the latest 40 networks and its architecture.

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C410.1	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410.2	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410.3	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410.4	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410.5	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410.6	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1
C410	2	2	1	1	-	-	-	-	-	1	-	1	2	1	1

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Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6018	Multimedia Compression and Communication	**C411.1:** Discuss the concepts of Error control coding
		C411.2: .Learn the concepts of encoding and decoding and digital data streams.
		c·411.3: Explain the methods for the generation of these codes And decoding techniques
		C411.4: Explain the detailed concepts of compression and decompression techniques
		C411.5: Discuss the concepts of multimedia compassion communication
		C411.6:Explain the concepts of multimedia networking and Vo IP Technology

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	POI	P02	P03	P04	POS	P06	P07	P08	P09	POIO	POII	P012	PSO 1	PS02	PSO 3
C411.1	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411.2	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411.3	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411.4	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411.5	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411.6	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1
C411	3	2	1	1	-	-	-	-	-	2	-	2	2	1	1

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Course Code	Course Name	Course Outcome (CO) Students will be able to
GE6757	rrotal Quality Management	**C412.1:** Discuss various dimensions of product and service quality
		C412.2: Apply the TQM principles for quality improvement in organization
		C412.3: Distinguish various TQM tools and techniques used in Manufacturing and Service sectors
		C412.4: Use QFD tool to design and develop a new product as per customer requirements.
		C412.5: Explain various ISO Standards and Quality systems practiced in various sector
		C412.6: Summarize the basic concepts in total quality management relevant to manufacturing and service Sectors

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C412.1	2	2	1	1	-	2	-	1	2	1	1	-	2	1	1
C412.2	2	2	1	1	-	2	-	1	2	1	1	-	2	1	1
C412.3	2	2	1	1	-	-2	-	1	2	1	1	-	2	1	1
C412.4	2	2	1	1	-	2	-	1	2	1	1	-	2	1	1
C412.5	2	2	1	1	-	2	2	1	2	1	1	-	2	1	1
C412.6	2	2	1	1	-	2	-	1	2	1	1	-	2	1	1
C412	2	2	1	1	-	**2**	**2**	1	**2**	1	1	-	**2**	1	1

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REGULATION 2013

B.E. ECE - COURSE OUTCOMES (CO)

Course Code	Course Name	Course Outcome (CO) Students will be able to
EC6811	Project Work	**C413.1:** De onstrate p ofound technical knowledge of the project.
		C413.2: Identify a real world problem, review literature and suggest its solution.
		C413.3: Demonstrate solutions to complex engineering problems utilizing a systems approach
		C413.4: Provide solutions to meet the specified needs of the society.
		C413.5: Perform multi-disciplinary task as an individual and/ or team member to manage the project/task.
		C413.6: Perform data analysis, interpret and provide valid conclusions and Interpret the findings with appropriate technological / research field

CO-PO MAPPING

	PROGRAM OUTCOMES												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3
C413.1	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3
C413.2	3	3	3	2	3	2	2	2	2	2	2	2	2	2	1
C413.3	3	3	3	2	3	2	2	2	2	2	2	2	2	2	1
C413.4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3
C413.5	3	3	3	3	3	2	2	2	2	2	2	2	2	2	1
C413.6	3	3	3	3	3	2	2	2	2	2	2	2	2	2	3
C413	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**

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