DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES (COS & POS MAPPING) OF ALL COURSES FRAMED UNDER

JNTUA-R15 REGULATION

INDEX

List of all courses in MEC, offered by the institution for the regulation R15, JNTUA

S.No	Course Code	Course Name	Year & Sem
1	15A52101	Functional English	
2	15A54101	Mathematics – I	
3	15A05101	Computer Programming	
4	15A51101	Engineering Chemistry	
5	15A01101	Environmental Studies	I-I Sem
6	15A52102	English Language Communication Skills	
7	15A51102	Engineering Chemistry Lab	
8	15A05102	Computer Programming Lab	
9	15A52201	English for Professional Communication	
10	15A54201	Mathematics – II	
11	15A03201	Material Science and Engineering	
12	15A56101	Engineering Physics	
13	15A03101	Engineering Drawing	I-II Sem
14	15A03202	Material Science and Engineering Lab	
15	15A56102	Engineering Physics Lab	
16	15A99201	Engineering & IT Workshop	
17	15A54301	Mathematics - III	
18	15A52301	Managerial Economics & Financial Analysis	
19	15A01308	Mechanics of Solids	
20	15A03301	Engineering Drawing for Mechanical Engineers	
21	15A03302	Engineering Mechanics	II-I Sem
22	15A03303	Thermodynamics	
23	15A01309	Mechanics of Solids Lab	
24	15A03304	Computer Aided Drafting Lab	
25	15A54401	Probability and Statistics	
26	15A99301	Basic Electrical and Electronics Engineering	
27	15A03401	Machine Drawing	
28	15A03402	Kinematics of Machines	
29	15A03403	Thermal Engineering – 1	II-II Sem
30	15A03404	Manufacturing Technology	
31	15A03405	Thermal Engineering Laborator	
32	15A03406	Manufacturing Technology Laboratory	

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S.No	Course Code	Course Name	Year & Sem
33	15A01510	Fluid Mechanics and Hydraulic Machines	III-I Sem
34	15A03501	Thermal Engineering - I	
35	15A03502	Dynamics of Machinery	
36	15A03503	Machine Tools	
37	15A03504	Design of Machine Members - I	
38	15A03505	Entrepreneurship (MOOCS-I)	
39	15A01511	Fluid Mechanics and Hydraulic Machines Laboratory	
40	15A03508	Machine Tools Laboratory	
41	15A99501	Audit course – Social Values & Ethics	
42	15A03601	Operations Research	III-II Sem
43	15A03602	Design of Machine Members – II	
44	15A03603	Heat Transfe	
45	15A03604	Finite Element Method	
46	15A03605	Metal forming Process	
47	15A03606	Non Conventional Source of Energy	
48	15A03609	Heat Transfer Laboratory	
49	15A03610	Computer Aided Engineering Laboratory	
50	15A52602	Advanced English Language Communication Skills (AELCS) Laboratory	
51	15A52601	Management Science	IV-I Sem
52	15A03701	Automobile Engineering	
53	15A03702	CAD/CAM	
54	15A03703	Metrology and Measurements	
55	15A03704	Refrigeration and Air – Conditioning (CBCC-II)	
56	15A03708	Automation and Robotics (CBCC-III)	
57	15A03710	CAD/ CAM Laboratory	
58	15A03711	Metrology and Measurements Laboratory	
59	15A03801	Industrial Engineering (MOOCS-II)	IV-II Sem
60	15A03805	Gas Turbines and Jet Propulsion (MOOCS -III)	
61	15A03807	Comprehensive Viva Voce	
62	15A03808	Technical Seminar	
63	15A03809	Project Work	

DEPARTMENT OF HUMANITIES AND SCIENCES

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-I	Reg: R15	AY: 2017-2018				

Course Code:	Course Name: **FUNCTIONAL ENGLISH**	L	T	P	C
15A52101	Prerequisite:NONE	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
2101.1	Acquire good listening skills to participate effectively in group discussions, debates, and interviews and writing skills for effective technical report writing. (BTL2)
2101.2	Develop oral communication skills in English to speak fluently in various academic and social situations. (BTL3)
2101.3	Identify deviant use of English both in spoken and written forms, and improve awareness of its in science and technology. (BTL2)
2101.4	Understand the importance of reading for life, and career and thereby develop an interest for it. (BTL2)
2101.5	Demonstrate fundamental skills required for critical thinking. (BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
2101.1									3	3	2	3		
2101.2									2	3	2	3		
2101.3									3	3	2	3		
2101.4									3	2	2	2		
2101.5									3	3	2	3		
AVG	0	0	0	0	0	0	0	0	3	3	3	3		

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ H&S**

RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

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NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, A.P.)**

DEPARTMENT OF HUMANITIES AND SCIENCES

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-I	Reg: R15	AY: 2016-2017				
Course Code:	**Course Name: Mathematics – I**		**L**	**T**	**P**	**C**
15A4101	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
4101.1	Solve the First, Second and Higher order D.Es and Applications of First Order D.E (BTL3)
4101.2	Attain the knowledge of Applications of L.D.Es like Mechanical & Electrical Oscillatory circuits and deflection of beams (BTLL2)
4101.3	Familiarize with functions of several variables which is useful in Optimizations. (BTLL6)
4101.4	Determine important tools of calculus in Higher Dimensions (Multiple Integrals) (BTLL5)
4101.5	Become familiar with the applications of vector calculus to Engineering Problems. (BTL6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
4101.1	3	2	2	2	-	-	-	-	-	-	-	2	2	2
4101.2	3	2	2	2	-	-	-	-	-	-	-	2	2	2
4101.3	2	3	3	2	-	-	-	-	-	-	-	2	2	3
4101.4	2	3	2	2	-	-	-	-	-	-	-	1	2	2
4101.5	3	3	2	2	-	-	-	-	-	-	-	2	2	2
AVG	3	3	3	2	-	-	-	-	-	-	-	2	2	3

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign

(K LAKSHMI)

HOD/ CSE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I – I	Reg: R15	AY: 2017-2018				

Course Code:	Course Name: **Computer Programming**	L	T	P	C
15A05101	Prerequisite:Nil	3	1	-	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
5101.1	Analyze overview of computer programming (BTL4)
5101.2	Understand various statements in C and discuss the arrays, stings, functions (BTL2)
5101.3	Illustrate pointers and understanding the scope of functions. (BTL2)
5101.4	Develop the command line arguments and structures (BTL 3)
5101.5	Understand the file handling functions and pre-processor directives. (BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
5101.1	3	2	2	2	-	-	-	-	-	-	-	2	2	3
5101.2	3	3	3	3	-	-	-	-	-	-	-	2	2	3
5101.3	3	3	2	3	-	-	-	-	-	-	-	3	2	2
5101.4	2	3	3	2	-	-	-	-	-	-	-	3	3	2
5101.5	2	3	3	2	-	-	-	-	-	-	-	3	2	2
AVG	**3**	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**2**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ CSE**

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DEPARTMENT OF HUMANITIES AND SCIENCES

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-II	Reg: R15	AY: 2017-2018				
Course Code:	**Course Name: Engineering Chemistry**		**L**	**T**	**P**	**C**
15A51101	Prerequisite: None		**3**	**0**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1101.1	Differentiate between hard and soft water.(L3)
1101.2	Discuss BUNA-S and BUNA-N Elastromers (L2)
1101.3	Understand the electrochemical sources of energy. (L3)
1101.4	Discuss about solid, liquid, gaseous fuels (L2)
1101.5	Understand the principles of lubricants and CNTs (L2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

Cos	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
1101.1	3	3	3	2	2	2			2		3	2	3	
1101.2	2	2	3	3		1	1					2		2
1101.3	3	2	3	2			3		1				3	
1101.4	2	2	2	2							1		2	2
1101.5	2	1	1	2		1							2	
AVG	3	2	3	3	2	3	2	####	2	####	2	2	3	2

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD**

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DEPARTMENT OF HUMANITIES AND SCIENCES

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-I	Reg: R15	AY: 2017-2018

Course Code:	Course Name: Environmental Studies	L	T	P	C
15A01101	Prerequisite: None	3	0	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME	
1101.1	Understand the various natural resources (L2)	
1101.2	Discribe about the Biodiversity and Ecosystem (L2)	
1101.3	Discuss about the pollution aspects (L3)	
1101.4	To know about the social issues related to environment and thir protection acts (L1)	
1101.5	Discribe about the population explosion and welfare programme (L2)	

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

Cos	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1101.1	3	2	3	2	3		2		2				2	2	
1101.2	2	2	3	2		2	3						3		2
1101.3	3	2	3	2			2					3	3	2	
1101.4	2	2	3	2			2	2						3	
1101.5	2	2	3	2	3		3					3		3	
AVG	3	2	3	2	3	2	3	2	2	####	####	3	3	3	2

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   (Y.KIRAN KUMAR)   **HOD**

B.Tech I – IISemester (ME)

<table>
<tr><td rowspan="6" style="text-align:center"><img>
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Engineering Excellence
Through Innovation</td><td colspan="5" style="text-align:center">RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE</td></tr>
<tr><td colspan="5" style="text-align:center">(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution.
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COURSE OUTCOMES & MAPPING OF COs with POs & PSOs</td></tr>
<tr><td colspan="5" style="text-align:center">SEM: I-II   Reg: R15   AY: 2017-2018</td></tr>
</table>

Course Code:	Course Name: **ENGLISH FOR PROFESSIONAL COMMUNICATION**	L	T	P	C
15A52201	Prerequisite:NONE	3	1	0	3

<div style="text-align:center">COURSE OUTCOMES (COs)</div>

CO No.	COURSE OUTCOME
2201.1	Participate effectively in debates on modern corporatism and listen, and speak well in English in group discussions. (BTL3)
2201.2	Recall the alternative sources of energy by listening, summarizing and rewriting reports. (BTL1)
2201.3	Develop report writing skills. (BTL3)
2201.4	Interpret charts and tables. (BTL2)
2201.5	Communicate effectively in interviews by developing required competence thereby enhancing improving job prospects. (BTL2)

<div style="text-align:center">Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)</div>

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
2201.1									3	3	2	2		
2201.2									2	3	-	2		
2201.3									3	3	2	3		
2201.4									3	3	3	3		
2201.5									3	3	1	3		
AVG	0	0	0	0	0	0	0	0	3	3	3	3		

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ H&S**

SEM: I-II	Reg: R15	AY: 2017-2018

Course Code:	Course Name: Mathematics – II	L	T	P	C
15A54201	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
4201.1	Understand the usage of Laplace Transforms. (BTL2)
4201.2	Evaluate the Fourier Series expansion of periodic functions. (BTL5)
4201.3	Understand the usage of Fourier Transforms. (BTL2)
4201.4	Formulate/Solve/Classify the solutions of P.D. Equations and also find the solutions of 1-Dimensional Wave equations and Heat equations. (BTL6)
4201.5	Understand the usage of Z-Transforms. (BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
4201.1	3	2	2	2	-	-	-	-	-	-	-	1	2	3
4201.2	2	3	2	2	-	-	-	-	-	-	-	1	2	2
4201.3	3	2	2	2	-	-	-	-	-	-	-	1	2	2
4201.4	3	2	2	2	-	-	-	-	-	-	-		3	2
4201.5	3	2	2	2	-	-	-	-	-	-	-	1	2	2
AVG	3	3	2	2	-	-	-	-	-	-	-	1	3	3

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   HOD/ CSE

  (K LAKSHMI)

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-II	Reg: R15	AY: 2017-2018				
Course Code:	**Course Name:** MATERIAL SCIENCE AND ENGINEERING		**L**	**T**	**P**	**C**
15A03201	Prerequisite: None		1	0	0/2	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3201.1	get knowledge on bonds of solids and knowing the crystallization of metals.
3201.2	able to construct the equilibrium diagrams by experimental methods and knowing all types of equilibrium diagrams isomorphs alloy systems , electric systems, pertectic systems solid-state transformations etc.
3201.3	able to learn the structure and properties of all cast irons, steels and Non-ferrous metal alloys of copper, Al and Titanium
3201.4	able to learn the methods of different heat treatments i.e. annealing, normalizing and hardening..
3201.5	understand the importance of advanced composite materials in application to sophisticated machine and structure of components, These composite materials helps to develop the components with required properties which we cannot attain using the metals & metal alloys

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3101T.1	3	-	-	-	-	2	-	-	-	3	-	-	3	1
3101T.2	3	-	-	-	-	2	-	-	-	3	-	-	3	1
3101T.3	3	-	-	-	-	2	-	-	-	3	-	-	3	1
3101T.4	3	-	-	-	-	2	-	-	1	3	-	-	3	1
3101T.5	3	-	-	1	-	2	-	-	2	3	-	-	3	1
AVG	3	-	-	-	-	2	-	-	1	3	-	-	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD**

DEPARTMENT OF HUMANITIES AND SCIENCES

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-II	Reg: R15	AY: 2017-2018				

Course Code:	Course Name: Engineering Physics	L	T	P	C
15A56101	Prerequisite:NONE	3	0	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
6101.1	**Articulate** interference, diffraction (BTL3), **Analyze** (BTL4). Device laser (BTL4), Develop optic fiber (BTL6)
6101.2	**Interpret** crystallography (BTL2), **Use** ultrasonics (BTL3).
6101.3	**Illustrate** quantum mechanics (BTL1) and **solve** electron theory(BTL3).
6101.4	**Categorize** semiconductors and magnetic materials (BTL4).
6101.5	**Explain** superconductivity (BTL1) and **Connect** nanomaterials (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
6101.1	2	3	2	2	3	1	–	–	–	–	–	1	2	3
6101.2	3	2	3	2	2	3	–	–	–	–	–	1	3	3
6101.3	2	3	2	1	2	2	–	–	–	–	–	2	3	3
6101.4	3	3	3	1	3	1	–	–	–	–	–	1	2	2
6101.5	3	2	2	2	2	2	–	–	–	–	–	3	2	2
AVG	3	3	3	2	3	3						2	3	3

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   (R.M.SHARMA)   HOD/ H&S

<table>
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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: I-II	Reg: R15	AY: 2021-2022

Course Code:	Course Name: **ENGINEERING DRAWING**	L	T	P	C
15A03101	Prerequisite: None	1	0	0/2	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3101T.1	Draw various curves applied in engineering.
3101T.2	Show projections of points, lines, planes and solids graphically.
3101T.3	Draw the development of surfaces of solids.
3101T.4	Use computers as a drafting tool.
3101T.5	Draw isometric and orthographic drawings using CAD packages.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3101T.1	3	1	1	-	-	-	-	-	-	3	-	-	3	1
3101T.2	3	3	2	-	-	--	-	-	-	3	-	-	3	1
3101T.3	3	1	1	-	-	--	-	-	-	3	-	-	3	1
3101T.4	3	3	3	-	-	-	-	-	1	3	-	-	3	1
3101T.5	3	2	3	1	-	-	-	-	2	3	-	-	3	1
AVG	**3**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**-**	**-**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD

 (B. RADHA KRISHNA)

B.Tech II – I Semester (ME)

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	DEPARTMENT OF MECHANICAL ENGINEERING
	COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-19

Course Code:	Course Name: MATHEMATICS-III	L	T	P	C
15A54301	Prerequisite: **NONE**	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
4302.1	able to analyze engineering problems using the concepts of Matrices and Numerical methods.
4302.2	able to analyze engineering problems using the concepts of Matrices and Numerical methods.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
4302.1	2	2	2	1	-	-	-	-	-	-	-	1	2	2
4302.2	2	2	2	1	-	-	-	-	-	-	-	1	2	2
AVG	2	2	2	1	0	0	0	0	0	0	0	1	2	2

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-19

Course Code:	Course Name: Managerial Economics and Financial Analysis	L	T	P	C
15A52301	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
2301.1	Get the basic inputs of Managerial Economics and demand concept and able to estimate the future demand of a product. (BTL2)
2301.2	Explain the concepts of cost and production and can calculate the breakeven point.(BTL2)
2301.3	Learn how to take effective decisions under various market situations and also about different forms of business organizations.(BTL2)
2301.4	Get the inputs of accounting concepts and analyze the financial statements.(BTL4)
2301.5	Know how to take an effective investment decision.(BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
2301.1	2	-	-	-	2	1	-	-	-	-	-	1	-	2
2301.2	3	-	1	-	-	2	-	-	-	-	-	2	-	2
2301.3	2	-	-	-	-	1	-	-	-	-	-	1	-	2
2301.4	2	-	-	-	2	1	-	2	-	-	-	1	-	2
2301.5	2	-	1	-	2	1	-	-	-	-	-	1	-	2
AVG	2	-	1	-	2	1	-	2	-	-	-	1	-	2

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low-

Course Faculty Sign   **HOD/MECH**

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-19

Course Code:	Course Name: Mechanics of Solids	L	T	P	C
15A01308	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1308.1	Evaluate stresses and strains (BTL5)
1308.2	To draw the SF and BM diagrams for various beams under different loading conditions(BTL4)
1308.3	Determine the resistance and deformation in machine members subjected to torsional loads and springs(BTL2)
1308.4	Analyze and design thin, thick cylinders. (BTL4)
1308.5	Analysis of stresses in curved bars. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1308.1	3	3	3	3	-	-	-	-	3	-	-	-	3	1
1308.2	3	3	3	3	-	-	-	-	3	-	-	-	3	1
1308.3	3	3	3	3	-	-	-	-	3	-	-	-	3	1
1308.4	3	3	3	3	-	-	-	-	3	-	-	-	3	1
1308.5	3	3	3	3	-	-	-	-	3	-	-	-	3	1
AVG	3	3	3	3	-	-	-	-	3	-	-	-	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-2019

Course Code:	Course Name: ENGINEERING DRAWING FOR MECHANICAL ENGINEERS	L	T	P	C
15A03301	Prerequisite: None	3	1	3	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1308.**1**	Drawing 2D and 3D diagrams of various objects.
1308.**2**	Learning conventions of Drawing, which is an Universal Language of Engineers.
1308.**3**	Drafting projections of points, planes and solids.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1308.**1**	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
1308.**2**	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
1308.**3**	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
AVG	**3**	**3**	**-**	**-**	**3**	**-**	**-**	**-**	**3**	**3**	**3**	**1**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-19				

Course Code:	Course Name: ENGINEERING MECHANICS	L	T	P	C
15A03302	Prerequisite: None	**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3302.1	Resolve forces and couples in mechanical systems. (L3)
3302.2	Identify the frictional forces and its influence on equilibrium. (L3)
3302.3	Find the centre of gravity and moment of inertia for various geometric shapes (L3)
3302.4	Develop equations for different motions. (L4)
3302.5	Determine the displacement, velocity and acceleration relations in dynamic systems (L4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3302.1	1	2	2	1	1	1	1	1	1	1	-	2	3	1
3302.2	2	2	2	1	1	1	1	1	1	1	-	2	3	1
3302.3	3	3	3	3	2	1	-	1	1	1	-	2	3	1
3302.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3302.5	2	2	3	1	1	1	1	1	1	1	-	2	3	1
AVG	**3**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**-**	**2**	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-19				
Course Code:	**Course Name: Thermodynamics**		**L**	**T**	**P**	**C**
15A03303	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3302.1	Understand the importance of thermodynamic properties related to conversion of heat energy into work. (L1)
3302.2	Apply the laws of thermodynamics to boilers, heat pumps, refrigerators, heat engines, compressors and nozzles. (BTL3)
3302.3	Utilize steam properties to design steam based components (BTL4)
3302.4	Introduce the concept of available energy for maximum work conversion. (BTL5)
3302.5	Analyze thermodynamic relations and air standard cycles (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3302.1	1	2	2	1	1	1	1	1	1	1	-	2	3	1
3302.2	2	2	2	1	1	1	1	1	1	1	-	2	3	1
3302.3	3	3	3	3	2	1	-	1	1	1	-	2	3	1
3302.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3302.5	2	2	3	1	1	1	1	1	1	1	-	2	3	1
AVG	**3**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**-**	**2**	**3**	**1**

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-I	Reg: R15	AY: 2018-219				

Course Code:	Course Name: Computer Aided Drafting Lab	L	T	P	C
15A03304	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3404.1	Demonstrate the conventional representations of materials and machine components. (BTL2)
3404.2	Model riveted, welded and key joints using CAD system. (BTL4) Create solid models and sectional views of machine components. (BTL6)
3404.3	Generate solid models of machine parts and assemble them. (BTL6)
3404.4	Translate 3D assemblies into 2D drawings. (BTL4)
3404.5	Create manufacturing drawing with dimensional and geometric tolerances. (BTL6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3404.1	3	3	-	-	3	-	-	-	3	3	3	1	3	1
3404.2	3	3	-	-	3	-	-	-	3	3	3	1	3	1
3404.3	3	3	-	-	3	-	-	-	3	3	3	1	3	1
3404.4	3	3	-	-	3	-	-	-	3	3	3	1	3	1
3404.5	3	3	-	-	3	-	-	-	3	3	3	1	3	1
AVG	3	3	-	-	3	-	-	-	3	3	3	1	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD/MECH

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	DEPARTMENT OF MECHANICAL ENGINEERING				
	COURSE OUTCOMES & MAPPING OF COs with POs & PSOs				
	SEM: II-I	**Reg: R15**	**AY: 2018-19**		

Course Code:	**Course Name:** Mechanics of Solids Lab	**L**	**T**	**P**	**C**
15A01309	Prerequisite: None	**0**	**0**	**4**	**2**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1305P.1	Understand the stress-strain behaviour of different materials.(BTL2)
1305P.2	Identify the difference between compression and tension testing.(BTL1)
1305P.3	Evaluate the hardness of different materials.(BTL5)
1305P.4	Correlate the elastic constants of the materials. .(BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
1305P.1	3	3			-	-	-	-	3	3	-	-	**3**	**1**
1305P.2	3	3			-	-	-	-	3	3	-	-	**3**	**1**
1305P.3	3	3			-	-	-	-	3	3	-	-	**3**	**1**
1305P.4	3	3			-	-	-	-	3	3	-	-	**3**	**1**
AVG	**3**	**3**			**-**	**-**	**-**	**-**	**3**	**3**	**-**	**-**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

B.Tech II – II Semester (ME)

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	DEPARTMENT OF MECHANICAL ENGINEERING
	COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19				
Course Code:	**Course Name:** Probability and Statistics		**L**	**T**	**P**	**C**
15A54401	Prerequisite: **Basic Equations & Basic Probability**		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
4401:1	Analyze the problems of engineering & industry using the techniques of testing of hypothesis, Statistical Quality Control and Queuing theory and draw appropriate inferences.
4401:2	Analyze the problems of engineering & industry using the techniques of testing of hypothesis, Statistical Quality Control and Queuing theory and draw appropriate inferences.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	P0												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
4401.1	2	2	2	1	-	-	-	-	-	-	-	1	2	1
4401.2	2	2	2	1	-	-	-	-	-	-	-	1	2	1
AVG	**2**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19

Course Code:	Course Name: BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	L	T	P	C
15A99301	Prerequisite: None	3	0	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
9301.1	basics of Electrical Circuits, Network theorems, two port networks. (BTL2)
9301.2	basics of, DC generators & motors, Transformers, Induction motors and Alternators. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
9301.1	3	2	2	1	1	1	1	1	1	1	-	2	3	1
9301.2	3	2	2	1	1	1	1	1	1	1	-	2	3	1
AVG	3	3	2	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

SEM: II-II	Reg: R15	AY: 2018-19			

Course Code:	Course Name: Machine Drawing	**L**	**T**	**P**	**C**
15A03401	Prerequisite: None	**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3401:1	Students will acquire skills to draft on a drawing sheet without much effect. Students are advised to visit machine shop.
3401:2	These drawings can be easily prepared and understood by both the people in a manufacturing industry and the consumers too. Students are advised to visit machine shop.
3401:3	able to produce the final product by procuring the units from various sources/suppliers and still produce any useful product serving effectively. It is not necessary that all the components to be made locally only.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3401.1	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
3401.2	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
3401.3	3	3	-	-	3	-	-	-	3	3	3	1	**3**	**1**
AVG	**3**	**3**	**-**	**-**	**3**	**-**	**-**	**-**	**3**	**3**	**3**	**1**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19				

Course Code:	Course Name: KINEMATICS OF MACHINERY	L	T	P	C
15A03402	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3402.1	An understanding of concepts of different of mechanism with lower pairs and higher pairs.(BTL1)
3402.2	Gain the knowledge of different types of straight line motion mechanism and steering gear mechanisms.(BTL6)
3402.3	Obtain an in depth knowledge of finding displacement, velocity and acceleration of different points on different mechanisms using different methods(relative velocity, Instantaneous methods(BTL3)
3402.4	Acquire the knowledge on different gear profiles and calculating the different parameters of gears. (BTL3)
3402.5	Design and analyze different cam profile for different types of followers and various gear trains.(BTL3) .

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3402.1	3	3	-	-	-	-	-	-	3	-	3	-	3	1
3402.2	3	3	-	-	-	-	-	-	3	-	3	-	3	1
3402.3	3	3	-	-	-	-	-	-	3	-	3	-	3	1
3402.4	3	3	-	-	-	-	-	-	3	-	3	-	3	1
3402.5	3	3	-	-	-	-	-	-	3	-	3	-	3	1
AVG	3	3	-	-	-	-	-	-	3	-	3	-	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19				

Course Code:	Course Name: Thermal Engineering – 1	L	T	P	C
15A03403	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3403.1	To understand the Working Principles of I.C. engines. (BTL2)
3403.2	To teach combustion process in SI and CI engines. (BTL4)
3403.3	To introduce different types of compressors. (BTL5)
3403.4	To familiarize concepts of thermodynamic cycles used in steam power plants and gas turbines (BTL5)
3403.5	To impart knowledge on the working of nozzles, turbines, refrigeration and air conditioning. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3403.1	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3403.2	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3403.3	3	3	1	3	2	1	-	1	1	1	-	2	3	1
3403.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3403.5	3	2	1	1	1	1	1	1	1	1	-	2	3	1
AVG	3	3	2	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19

Course Code:	Course Name: Manufacturing Technology	L	T	P	C
15A03404	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3404.**1**	Understand various casting process involved in the conversion of raw materials to useful products, gating system features and designing of Risers(BTL1)
3404.**2**	Identify and analyze various welding and metal cutting operations(BTL1)
3404.**3**	Apply the knowledge of metal working process in sheet metal forming Processes, drawing and rolling and analyzing the process variables. (BTL2)
3404.**4**	. Understand the primary forming processes like forging, extrusion, equipment used and process variables(BTL3)
3404.**5**	Identify various plastic parts manufacturing techniques and their methods(BTL6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3404.**1**	3	1	-	-	3	1	1	-	1	-	-	2	3	1
3404.**2**	3	1	-	-	3	1	1	-	1	-	-	2	3	1
3404.**3**	3	1	-	-	3	1	2	-	1	-	-	2	3	1
3404.**4**	3	1	-	-	3	1	2	-	1	-	-	2	3	1
3404.**5**	3	1	-	-	3	1	2	-	1	-	-	2	3	1
AVG	**3**	**1**	**-**	**-**	**3**	**1**	**2**	**-**	**1**	**-**	**-**	**2**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD/MECH

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg. R15	AY: 2018-19				

Course Code:	Course Name: Thermal Engineering Laboratory	L	T	P	C
15A03405	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3401P.1	To Explain different working cycles of engine (L1)
3401P.2	To Describe various types of combustion chambers in IC engines (BTL3)
3401P.3	To Illustrate the working of refrigeration and air conditioning systems (BTL4)
3401P.4	To Evaluate the Heat Balance Sheet of IC engine. (BTL5)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3401P.1	1	2	2	1	1	1	1	1	1	1	-	2	3	1
3401P.2	2	2	2	1	1	1	1	1	1	1	-	2	3	1
3401P.3	3	3	3	3	2	1	-	1	1	1	-	2	3	1
3401P.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
AVG	3	3	3	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: II-II	Reg: R15	AY: 2018-19

Course Code:	Course Name: Manufacturing Technology Laboratory	L	T	P	C
15A03406	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3406.**1**	Understand the making of patterns and calculation of its allowances(BTL1)
3406.**2**	Prepare a mould cavity and casting, Understand the making of hallow parts like bottles by the blow moulding machine(BTL1)
3406.**3**	Understand the joining of metals by welding process, and its heat affected zone on weldments(BTL2)
3406.**4**	Understand the moulding sand properties with the help of permeability meter, universal sand strength machine(BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3406.**1**	3	1	-	-	3	1	-	-	2	1	-	2	3	1
3406.**2**	3	1	-	-	3	1	-	-	2	1	-	2	3	1
3406.**3**	3	1	-	-	3	1	-	-	2	1	-	2	3	1
3406.**4**	3	1	-	-	3	1	-	-	2	1	-	2	3	1
	3	1	1	-	3	1	-	-	2	1	-	2	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name: Fluid Mechanics & Hydraulic Machines**		**L**	**T**	**P**	**C**
15A01510	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1510.1	Familiarize basic terms used in fluid mechanics (BTL1).
1510.2	Understand the principles of fluid statics, kinematics and dynamics (BTL1)
1510.3	Understand flow characteristics and classify the flows and estimate various losses in flow through channels (BTL1)
1510.4	Analyze characteristics for uniform and non-uniform flows in open channels (BTL4)
1510.5	Design different types of turbines, centrifugal and multistage pumps. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1510.1	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1510.2	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1510.3	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1510.4	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1510.5	3	3	-	-	-	1	-	1	1	-	-	2	3	1
	3	**3**	**-**	**-**	**-**	**1**	**-**	**1**	**1**	**-**	**-**	**2**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD/MECH

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-2020				

Course Code:	Course Name: Thermal Engineering - II	L	T	P	C
15A03501	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3501.1	To understand the Working Principles of I.C. engines. (BTL2)
3501.2	To teach combustion process in SI and CI engines. (BTL4)
3501.3	To introduce different types of compressors. (BTL5)
3501.4	To familiarize concepts of thermodynamic cycles used in steam power plants and gas turbines (BTL5)
3501.5	To impart knowledge on the working of nozzles, turbines, refrigeration and air conditioning. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3501.1	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3501.2	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3501.3	3	3	1	3	2	1	-	1	1	1	-	2	3	1
3501.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3501.5	3	2	1	1	1	1	1	1	1	1	-	2	3	1
AVG	3	3	2	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING			
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs			

SEM: III-I	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name:** Dynamics of Machinery		L	T	P	C
15A03502	Prerequisite: None		3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3502.1	Understand the effect of reactive gyroscopic couple on the stability of vehicles (BTL2)
3502.2	Understand the power lost and power transmitted due to friction (BTL2)
3502.3	Identify and correct the unbalances of rotating body (BTL1)
3502.4	Reduce the magnitude of vibration and isolate vibration of dynamic systems. (BTL1)
3502.5	Determine dimensions of Governors for speed control .(BTL1)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3502.1	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3502.2	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3502.3	3	3	1	-	-	-	-	-	-	1	-	1	3	1
3502.4	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3502.5	3	2	1	-	-	-	-	-	-	1	-	1	3	1
	3	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**1**	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-2020

Course Code:	**Course Name:** Machine Tools	L	T	P	C
15A03503	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3503.**1**	Choose cutting processes and variables. (l3) .Relate tool wear and tool life. (l1)
3503.**2**	Calculate the machining parameters for different machining processes. (l5)
3503.**3**	Identify methods to generate different types of surfaces. (l3)
3503.**4**	Explain work-holding requirements. (l2)
3503.**5**	Design jigs and fixtures. (l6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3503.**1**	3	-	-	-	3	1	-	-	1	-	-	2	3	1
3503.**2**	3	-	-	-	3	1	-	-	1	-	-	2	3	1
3503.**3**	3	-	-	-	3	1	-	-	1	-	-	2	3	1
3503.**4**	3	-	-	-	3	1	-	-	1	-	-	2	3	1
3503.**5**	3	-	1	-	3	1	-	-	1	-	-	2	3	1
	3	**-**	**1**	**-**	**3**	**1**	**-**	**-**	**1**	**-**	**-**	**2**	**3**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-20				

Course Code:	Course Name: DESIGN OF MACHINE MEMBERS– I	L	T	P	C
15A03504	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3504:1	capable to apply design procedures using theories of failure for different elements.
3504:2	o design simple components under cyclic loading using Goodman's and Soderberg's criterions.
3504:3	able to design riveted joints with different configuration, boiler shell joint design and eccentric loading design of riveted joints.
3504:4	able to design cotter joint, knuckle joint and shafts.
3504:5	able to design various rigid and flexible shaft couplings.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3504.1	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3504.2	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3504.3	3	3	1	-	-	-	-	-	-	1	-	1	3	1
3504.4	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3504.5	3	2	1	-	-	-	-	-	-	1	-	1	3	1
	3	**3**	**2**	-	-	-	-	-	-	**1**	**-**	**1**	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-2020

Course Code:	Course Name: FLUID MECHANICS AND HYDRAULIC MACHINES LAB	L	T	P	C
15A01511	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
1511.1	By performing the various tests in this laboratory the student will be able to know the principles of discharge measuring devices and head loss due to sudden contraction and expansion in pipes and working principles of various pumps and motors. **(BTL1).**
1511.2	Understand the bernoulis theorem (BTL2)
1511.3	Analysize hydraulic machines (BTL13)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
1511.1	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1511.2	3	3	-	-	-	1	-	1	1	-	-	2	3	1
1511.3	3	3	-	-	-	1	-	1	1	-	-	2	3	1
AVG	3	3	-	-	-	1	-	1	1	-	-	2	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-20

Course Code:	Course Name: Machine Tools Laboratory	L	T	P	C
15A03508	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3508.**1**	Identify techniques to minimize the errors in measurement(BTL1)
3508.**2**	Identify methods and devices for measurement of length, angle, gear & thread parameters, surface roughness and geometric features of parts (BTL1)
3508.**3**	Understand working of lathe, shaper, planner, drilling, milling and grinding machines. (BTL2)
3508.**4**	Comprehend speed and feed mechanisms of machine tools. (BTL5)
3508.**5**	Estimate machining times for machining operations on machine tools(BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3508.**1**	3	2	-	-	3	1	1	-	-	-	-	2	3	2
3508.**2**	3	1	-	-	3	1	2	-	-	-	-	2	3	1
3508.**3**	3	1	-	-	3	1	2	-	-	-	-	2	3	1
3508.**4**	3	1	-	-	3	1	2	-	-	-	-	2	3	1
3508.**5**	3	1	1	-	3	1	-	-	-	-	-	2	3	1
AVG	3	1	1	-	3	1	2	-	-	-	-	2	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

B.Tech III – II Semester (ME)

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COURSE OUTCOMES & MAPPING OF COs with POs & PSOs</td></tr>
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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name:** Operations Research		**L**	**T**	**P**	**C**
15A03601	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3601:1	Develop mathematical models for practical problems. (l3)
3601:2	Apply linear programming to transportation problems. (l3)
3601:3	Solve games using various techniques. (l3)
3601:4	Solve production scheduling and develop inventory policies. (l6
3601:5	Apply optimality conditions for constrained and unconstrained nonlinear problems. (l3)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
36011	2	2	1	2	-	-	-	-	-	-	-	-	2	-
3601.2	2	2	2	2	-	-	-	-	-	-	-	-	2	-
3601.3	2	2	1	2	-	-	-	-	-	-	-	-	2	-
3601.4	2	2	-	2	-	-	-	-	-	-	-	-	2	-
3601.5	2	2	-	2	-	-	-	-	-	-	-	-	2	-
AVG	2	2	1	2	-	-	-	-	-	-	-	-	2	-

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-20				
Course Code:	**Course Name: DESIGN OF MACHINE MEMBERS– 1I**		**L**	**T**	**P**	**C**
15A03602	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3602:1	able to design crane hooks, C-clamps and various belt, rope and chain drives.
3602:2	able to design helical sprigs for two wheel vehicle and laminated springs for trucks
3602:3	able to design journal bearings, ball bearings and roller bearings and to know the advantages of rolling contact bearings against sliding contact bearings.
3602:4	able to design spur and helical gears for different input conditions.
3602:5	able to know various forces acting on I C engine parts and failure criteria to be adopted for various parts.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3602.1	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3602.2	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3602.3	3	3	1	-	-	-	-	-	-	1	-	1	3	1
3602.4	3	2	2	-	-	-	-	-	-	1	-	1	3	1
3602.5	3	2	1	-	-	-	-	-	-	1	-	1	3	1
AVG	**3**	**3**	**2**	-	-	-	-	-	-	**1**	**-**	**1**	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

SEM: III-I	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name: Heat transfer**		**L**	**T**	**P**	**C**
15A03603	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3603-1	To impart the basic laws of conduction, convection and radiation heat transfer and their applications (BTL2)
3603-2	To familiarize the convective heat transfer concepts (BTL4)
3603-3	To explain basics of radiation heat transfer (BTL5)
3603-4	To make conversant with the heat transfer analysis related to thermal systems like heat exchangers, evaporator, and condenser. (BTL5)
3603-5	To understand the phenomenon of boiling and condensation to familiarize the mass transfer process (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3603.1	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3603.2	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3603.3	3	3	1	3	2	1	-	1	1	1	-	2	3	1
3603.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3603.5	3	2	1	1	1	1	1	1	1	1	-	2	3	1
AVG	3	3	2	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-2020

Course Code:	Course Name: Finite Element Method	L	T	P	C
15A03604	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3604:1	able to know introductory basic principles and approaches for solving FEM problems in different fields.
3604:2	able to formulate FEM model for simple problems.
3604:3	able to write interpolation functions to higher order isoparametric elements.
3604:4	able to derive element matrices for applying the principles to find stresses in beams and trusses and temperature distribution in composite walls and fins.
3604:5	able to solve bars, trusses, beams and heat transfer problems using FEM and also to apply boundary conditions in realistic problems.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3604.1	2	2	1	2	2	-	-	-	-	-	-	-	3	
3604.2	2	2	2	2	2	-	-	-	-	-	-	-	3	
3604.3	2	2	1	2	2	-	-	-	-	-	-	-	3	
3604.4	2	2	-	2	2	-	-	-	-	-	-	-	3	
3604.5	2	2	-	2	2	-	-	-	-	-	-	-	3	
AVG	2	2	1	2	2	-	-	-	-	-	-	-	3	

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name:** Metal forming Process		**L**	**T**	**P**	**C**
15A03605	Prerequisite: None		3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3605:1	understand the basic concept on one, two and three dimensional stress analysis, theory of plasticity, strain hardening, hot and cold working process
3605:2	understand the principles of rolling and forging processes, their applications and defects
3605:3	understand the fundamentals of extrusion process and wire drawing processes and their industrial applications.
3605:4	understand the various press working processes, their advantages and disadvantages.
3605:5	understand the concept of plastic manufacturing process, rapid manufacturing process and its applications.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3605.1	2	-	1	-	2	-	-	2	-	-	-	2	2	-
3605.2	2	-	2	-	2	-	-	2	-	-	-	2	2	-
3605.3	2	-	1	-	2	1	-	2	-	-	-	2	2	-
3605.4	2	-	-	-	2	1	-	2	-	-	-	2	2	-
3605.5	2	-	-	-	2	1	2	2	-	-	-	2	2	-
AVG	2	-	1	-	2	1	2	2	-	-	-	2	2	-

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Lo

Course Faculty Sign   **HOD/MECH**

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NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, A.P.)

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-2020

Course Code:	Course Name: Non Conventional Source of Energy	L	T	P	C
15A03606	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3606:1	Understanding various Non-conventional sources of Energy.
3606:2	Able to learn how to use renewable energies instead of conventional fuels

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3606.1	2	-	1	-	-	2	3	3	-	-	-	-	-	2
3606.2	2	-	2	-	-	2	3	3	-	-	-	-	-	2
AVG	2	-	1	-	2	2	3	3	-	-	-	-	-	2

3/2/1 Indicates Strength of Correlation. 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-I	Reg: R15	AY: 2019-2020

Course Code:	Course Name: Heat Transfer Lab	L	T	P	C
15A03609	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3609.1	To Understand different modes of heat transfer (BTL1)
3609.2	To evaluate thermal conductivities of different materials (BTL4)
3609.3	To Gain knowledge about natural and force convection phenomenon (BTL5)
3609.4	Estimate experimental uncertainty in measurements (BTL5)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3609.1	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3609.2	3	2	2	1	1	1	1	1	1	1	-	2	3	1
3609.3	3	3	1	3	2	1	-	1	1	1	-	2	3	1
3609.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
AVG	3	3	2	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III-II	Reg: R15	AY: 2019-2020				
Course Code:	**Course Name:** Computer Aided Engineering Laboratory	**L**	**T**	**P**	**C**	
15A03610	Prerequisite: None	0	0	4	2	

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3610:1	Generate CAD models.
3610:2	Write CNC programs for various machining operations.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3602T.1	2	-	3	-	3	-	-	-	-	3	3	2	**2**	**-**
3602T.2	2	-	3	-	3	-	-	--	-	3	3	2	**2**	**-**
AVG	2	-	3	-	3	-	-	-	-	3	3	2	**2**	**-**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/MECH**

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: III – II	Reg: R15	AY: 2019-2020

Course Code:	**Course Name:** Advanced English Language Communication Skills (AELCS) Laboratory	**L**	**T**	**P**	**C**
15A52602	Prerequisite: Nil	**0**	**0**	**2**	**0**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
2602.**1**	Remember and understand the different aspects of the English language proficiency with emphasis on LSRW skills[BTL1]
2602.**2**	Apply communication skills through various language learning activities[BTL2]
2602.**3**	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension. [BTL4]
2602.**4**	Evaluate and exhibit acceptable etiquette essential in social and professional settings.[BTL6]
2602.**5**	Create awareness on mother tongue influence and neutralize it in order to improve fluency in spoken English.[BTL6]

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
2602.1	-	-	-	-	-	-	-	-	1	1	-	2	-	1
2602.2	-	-	-	-	-	1	2	-	-	1	-	-	1	1
2602.3	-	-	-	-	-	-	-	-	-	1	-	-	1	1
2602.4	-	-	-	-	-	-	1	1	1	-	-	-	1	1
2602.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG	**-**	**-**	**-**	**-**	**-**	**1**	**2**	**1**	**1**	**1**	**-**	**2**	**1**	**1**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign

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	DEPARTMENT OF MECHANICAL ENGINEERING
	COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021				
Course Code:	**Course Name: Management Science**		**L**	**T**	**P**	**C**
15A52601	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
2601.1	Understand the concepts & principles of management and know the designs of organizational structures. (BTL2)
2601.2	Apply the knowledge of Work-study principles & Quality Control techniques. (BTL3)
2601.3	Analyze the concepts of HRM in Recruitment, Selection and Training & Development. (BTL4)
2601.4	Evaluate PERT/CPM Techniques in project management& and Basic knowledge about Strategy formulation and implementation in enterprises. (BTL5)
2601.5	Understand the modern concepts in management like SCM, BPO, Six Sigma and TQM. (BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
2601.1	-	2	-	2	-	-	-	1	3	2	-	-	-	2
2601.2	-	3	3	2	-	-	-	-	-	-	-	-	-	2
2601.3	-	2	3	2	-	-	-	2	2	2	-	-	-	3
2601.4	-	3	3	3	1	-	-	-	-	-	1	-	-	2
2601.5	-	-	-	1	-	-	-	-	2	2	1	-	-	2
AVG	-	3	3	3	1	-	-	2	2	2	1	-	-	**2**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021

Course Code:	Course Name: AUTOMOBILE ENGINEERING	L	T	P	C
(15A03701)	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3701.1	Illustrate working of IC engine components.(BTL1)
3701.2	Analyze the combustion phenomenon in S.I and C.I engines and various emission control methods. .(BTL1)
3701.3	Explain various elements and transmission system of an automobile.(BTL2)
3701.4	Explain, steering and suspension systems of an automobile.(BTL6)
3701.5	Describe the importance of safety systemand hybrid vehicle.(BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3701.1	3	2	1	-	-	-	-	-	1	-	-	-	3	2
3701.2	3	3	2	-	-	-	-	-	2	-	-	-	3	3
3701.3	3	2	1	-	-	-	-	-	2	-	-	-	3	2
3701.4	3	2	-	-	-	-	-	-	1	-	-	-	3	2
3701.5	3	3	-	-	-	-	-	-	1	-	-	-	3	3
AVG	3	3	1	-	-	-	-	-	2	-	-	-	3	3

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021				

Course Code:	Course Name: **CAD/CAM**	L	T	P	C
15A03702	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3702.1	Apply various transformations to manipulate a geometric model.(BTL3)
3702.2	Illustrate various entities of wire frame, surface, and solid models. (BTL1)
3702.3	Develop the CNC part programming for given component. (BTL2)
3702.4	Formulate manufacturing cells based on similar attributes of parts, Justify the need of computer aided quality control.(BTL2)
3702.5	Propose trends in manufacturing to improve the productivity. (BTL3)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3702.1	2	-	3	-	3	-	-	-	-	3	3	2	2	-
3702.2	2	-	3	-	3	-	-	--	-	3	3	2	2	-
3702.3	2	-	3	-	3	-	-	-	-	3	3	2	2	-
3702.4	2	-	3	-	3	-	-	-	-	3	3	2	2	-
3702.5	2	-	3	-	3	-	-	-	-	3	3	2	2	-
AVG	2	-	3	-	3	-	-	-	-	3	3	2	2	-

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD/ MECH

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021				
Course Code:	Course Name: **METROLOGY AND MEASUREMENTS**		**L**	**T**	**P**	**C**
15A03701	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3701.1	Understand the principles of measurement systems(BTL2)
3701.2	Design mechatronics system, control systems and microprocessor-based controllers(BTL4)
3701.3	Choose the appropriate instrument to measure the physical parameters like displacement, speed, stress and strain, force, torque, temperature and flow. (BTL1)
3701.4	Analyze the measurement data obtained from different measuring instruments for the same physical quantity.(BTL4)
3701.5	Illustrate on different metrological tools and perform measurements in quality impulsion. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3701.1	3	1	3	-	2	-	-	-	-	1	-	-	3	1
3701.2	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3701.3	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3701.4	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3701.5	3	1	3	-	2	-	-	-	3	3	-	-	3	1
AVG	3	1	3	-	2	-	-	-	3	3	-	-	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   HOD/ MECH

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021

Course Code:	Course Name: Refrigeration and Air Conditioning	L	T	P	C
15A03704	Prerequisite: None	3	1	0	3

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3704.1	To understand the thermodynamic principles are applied to the refrigeration and air conditioning industry.(BTL2)
3704.2	To learn how real systems used in commercial , industrial refrigeration and air conditioning industries are to be built-up. (BTL4)
3704.3	To impart the knowledge on various refrigeration methods like VCR, VAR and latest developments (BTL5)
3704.4	To analyze the various air conditioning methods like summer, winter and year round air conditioning (BTL5)
3704.5	To understand the practical applications of refrigeration and air conditioning systems. (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3704.1	1	2	3	1	1	1	1	1	1	1	-	2	3	1
3704.2	1	2	3	1	1	1	1	1	1	1	-	2	3	1
3704.3	3	3	3	3	2	1	-	1	1	1	-	2	3	1
3704.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3704.5	1	2	1	1	1	1	1	1	1	1	-	2	3	1
AVG	2	3	3	2	2	1	1	1	1	1	-	2	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021				
Course Code:	Course Name: **AUTOMATION AND ROBOTICS**		**L**	**T**	**P**	**C**
15A03708	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3708.1	Understand to know what is automation, types of automation, components of automation, strategies and levels of automation (BTL2)
3708.2	Understand the types of flow lines, quantitative analysis of flow lines, how the assembly is carried out on automated flow line without interruption and how to balance the line and flexible assembly lines (BTL2)
3708.3	Know the various components in the anatomy of robot. By knowing this the student may apply in the design of new robotic structure. (BTL1)
3708.4	Understand the applications of various types of end effectors, and sensor devices..(BTL2)
3708.5	Understand robot programming languages which may adopt in different applications of robot. (BTL2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3708.1	3	1	3	-	2	-	-	-	-	1	-	-	3	1
3708.2	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3708.3	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3708.4	3	1	3	-	2	-	-	-	3	3	-	-	3	1
3708.5	3	1	3	-	2	-	-	-	3	3	-	-	3	1
AVG	3	1	3	-	2	-	-	-	3	3	-	-	3	1

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021				
Course Code:	Course Name: **CAD/CAM LABORATORY**		L	T	P	C
15A03710	Prerequisite: None		**0**	**0**	**4**	**2**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3710.1	Generate CAD models. (BTL4)
3710.2	Write CNC programs for various machining operations. (BTL1)
3710.3	Write programs for different curves. (BTL1)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3710.1	2	-	3	-	3	-	-	-	-	3	3	2	3	-
3710.2	2	-	3	-	3	-	-	--	-	3	3	2	3	-
3710.3	2	-	3	-	3	-	-	-	-	3	3	2	3	-
AVG	2	-	3	-	3	-	-	-	-	3	3	2	3	-

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-I	Reg: R15	AY: 2020-2021

Course Code:	Course Name: **METROLOGY & MEASUREMENTS LABORATORY**	L	T	P	C
15A03711	Prerequisite: None	0	0	4	2

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3711.1	Study of sensors, Hydraulic and Pneumatic actuators and experiment ion of its characterization for industrial applications. (BTL2)
3711.2	Study of sensors, Hydraulic and Pneumatic actuators and experiment ion of its characterization for industrial applications.(BTL2)
3711.3	Differentiate the accuracy of different instruments.. (BTL2)
3711.4	Analyze the measurement data obtained from different measuring instruments for the same physical quantity.(BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
3711.1	3	-	2	3	-	-	-	-	3	3	-	-	3	-
3711.2	3	-	2	3	-	-	-	-	3	3	-	-	3	-
3711.3	3	-	-	-	-	-	-	-	3	3	-	-	3	-
3711.4	3	-	-	-	-	-	-	-	3	3	-	-	3	-
AVG	3	-	-	-	-	-	-	-	3	3	-	-	3	-

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**

B.Tech IV – II Semester (ME)

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	COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-II	Reg: R15	AY: 2020-2021				
Course Code:	**Course Name:INDUSTRIAL ENGINEERING**	**L**	**T**	**P**	**C**
15A03801	Prerequisite: None	**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3801.1	Explain the concepts, theories of management and organization (BTL2)
3801.2	Can Select the suitable plant layouts and plant locationfor production(BTL1)
3801.3	Determine to select best possible manufacturing procedures. (BTL5)
3801.4	Understand the different types of inventory models and its applicability (BTL2)
3801.5	Know the importance of inspection and quality standards in production (BTL1)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3801.1	2	-	1	-	-	-	-	-	-	-	-	-	-	2
3801.2	2	-	2	-	-	-	-	-	-	-	-	-	-	2
3801.3	2	-	1	-	-	1	-	-	-	-	-	-	-	2
3801.4	2	-	-	-	2	1	-	-	-	-	-	-	-	2
3801.5	2	-	-	-	2	1	2	-	-	-	-	-	-	2
AVG	**2**	**-**	**2**	**-**	**2**	1	2	**-**	**-**	**-**	**-**	**-**	**-**	**2**

3/2/1 Indicates Strength of Correlation. 3-High, 3-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**
(K.RAMAMOHAN REDDY)

RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES & MAPPING OF COs with POs & PSOs

SEM: IV-II	Reg: R15	AY: 2020-2021				
Course Code:	**Course Name: Gas Turbine and Jet Propulsion**		**L**	**T**	**P**	**C**
15A03805	Prerequisite: None		**3**	**1**	**0**	**3**

COURSE OUTCOMES (COs)

CO No.	COURSE OUTCOME
3805.1	To understand the basic gas cycles of gas turbine (BTL2)
3805.2	To analyze the methods of regeneration, inter cooling and reheating of Brayton cycle of gas turbine (BTL4)
3805.3	To familiarize the concept of jet propulsion (BTL5)
3805.4	To analyze the working principle of jet engines (BTL5)
3805.5	To impart knowledge on the working of rockets (BTL4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) & Program Specific Outcomes (PSOs)

COs	PO												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
3805.1	1	2	3	1	1	1	1	1	1	1	-	2	3	1
3805.2	1	2	3	1	1	1	1	1	1	1	-	2	3	1
3805.3	3	3	3	3	2	1	-	1	1	1	-	2	3	1
3805.4	3	2	2	2	2	1	-	1	1	1	-	2	3	1
3805.5	1	2	1	1	1	1	1	1	1	1	-	2	3	1
AVG	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**-**	**2**	3	1

3/2/1 Indicates Strength of Correlation: 3-High, 2-Medium and 1-Low

Course Faculty Sign   **HOD/ MECH**