ST.PETERS ENGINEERING COLLEGE

DEPARTMENT OF MECHANICAL ENGINEERING

Correlation between the Course outcomes and Program Outcomes A.Y. 2020-21

II YEAR I SEM

COURSECODE	COURSENAME	COURSE OUTCOMES	PROGRAM OUTCOMES													
			1	2	3	4	5	6	7	8	9	10	11	12	Pso1	Pso2
MA301BS	PROBABILITY AND STATISTICS AND COMPLEX VARIABLES	C211.1 Solve Linear Partial differential equations of first and second order.	3	2	2											2
		C211.2 Associate the concepts of Fourier series expansion for even and odd functions.	2	1	1											1
		C211.3Apply the concepts of Fourier series in solving boundary value problems.	3	2	2											
		C211.4 Discuss the Fourier transform, Fourier Sine and Cosine transform techniques.	2	1	1											1
		C211.5 Discuss the concepts of Z-Transform techniques for discrete time systems.	2	1	1											1
		C211.6 Apply transforms techniques in modeling physical processes like Heat Conduction, Communications systemsand Electromagnetic Theory.	3	2	2	1										
		Average	**3**	**2**	**2**	**1**										**1**
ME302PC	MECHANICS OF SOLIDS	C212.1Explain basic concepts of stress, strain and their relations based on linear elasticity. Material behaviors due to different types of loading will be discussed.	3	2											3	2
		C212.2 Solve stresses and deformation of a bar due to an axial loading under uniform and non-uniform conditions.	3	2	2										3	2
		C212.3 Develop shear-moment diagrams of a beam and find the maximum moment/shear and their locations.	3	3	2										3	2
		C212.4 Analyze and design structural members subjected to bending and combined stresses using the fundamental concepts of stress, strain and elastic behavior of materials.	3		2										2	3
		C212.5 Construct principal planes and stresses, and apply the results to combined loading case.	3	2											3	2

		C212.6 Design cylinders and torsions to support a given load.	3		3										3	2
		Average	**3**	**2.3**	**2.25**										**2.83**	**2.16**
ME303PC	**MATERIALS SCIENCE AND METALLURGY**	C213.1 ability to Understand the basics of materials	3									2				2
		C213.2 ability to Understand Estimate the analysis of phases and lever rule	2						2			3			3	
		C213.3 ability to Understand increase the components and phases	3			3									3	3
		C213.4 ability to Understand the statistical or microscopic analysis of physical explanations	3			2										
		C213.5 ability to Understand the utility of the knowledge heat treatment and types of heat treatments	3	3		2										
		Average	**2.8**	**3**		**2.3**			**2**			**2.5**			**3**	**2.5**
ME304PC	**PRODUCTION TECHNOLOGY**	C214.1 Describe the types, materials, allowances and defects in casting	3	3	3	3	3									
		C214.2 Explain the patterns, design of gating system and solidification.	3	2	2	2	2									2
		C214.3Distinguish between the various welding processes applicable in the manufacturing industries.	3	3	2	2	2									2
		C214.4Explain the advanced welding processes, defects and testing of welds	3	2	3	2	2									
		C214.5Apply the different deformation process applicable for the various products.	3	2	2	3	2									
		C214.6Explain the various extrusion, forging processes.	3	2	2	2	2									
		Average	**3.0**	**2.3**	**2.3**	**2.3**	**2.1**									**2**
ME305PC	**THERMODYNAMICS**	C215.1 ability to Understand the basic techniques of thermal conversions.	3									2				2
		C215.2 ability to UnderstandEstimate the analysis of power and refrigeration cycles with air water – vapour mixtures	2						2			3			3	

		C215.3 ability to Understandincrease the utility of the knowledge fluid flow and heat transfer problems solved	3			3									3	3
		C215.4 ability to Understandthe statistical or microscopic analysis of physical explanations	3			2										
		C215.5 ability to Understand the utility of the knowledge fluid flow and heat transfer problems solved. Steam tables and charts given in the appendix.	3	3		2										
		Average	**2.8**	**3.0**		**2.3**			**2.0**			**2.5**			**3.0**	**2.5**
ME306PC	**PRODUCTION TECHNOLOGY LAB**	C216.1 Describe the types, materials, allowances and defects in casting	3	3	3	3	3									
		C216.2 Explain the patterns, design of gating system and solidification.	3	2	2	2	2									2
		C216.3Distinguish between the various welding processes applicable in the manufacturing industries.	3	3	2	2	2									2
		C216.4Explain the advanced welding processes, defects and testing of welds	3	2	3	2	2									
		C216.5Apply the different deformation process applicable for the various products.	3	2	2	3	2									
		C216.6Explain the various extrusion, forging processes.	3	2	2	2	2									
		Average	**3.0**	**2.3**	**2.3**	**2.3**	**2.1**									**2**
ME307PC	**MACHINE DRAWING**	C217.1 Students will be able to represents different types of materials and machine components like springs, screws and bearings.	3		2											
		C217.2 Students will be able to represents different types of screw threads nut bolts screws keys and different types of joints like cotter and knuckle joints	3				2									2
		C217.3 Students will be able to represents different types of riveted heads and explain about different types of riveted joints like chain riveting and zig zag riveting of plates.	3				2									2
		C217.4 Students will be able to represents different types of coupling and bearings	3	2	3											

		C217.5 Students will be able to assemble different parts like steam engine parts, machine tool parts.				2	1									2
		C217.6 Students will be able to assemble different parts like stuffing boxes parts,						3								2
		Average	**3.0**	**2.0**	**2.5**	**2.0**	**1.6**	**3.0**								**2.0**
ME308PC	**MS & MOS LAB**	C218.1 Compute the tensile and shear properties of materials using UTM	3	2					2						3	2
		C218.2 Compute the torsion and impact strength using respective test setup	3	2	2				2						3	2
		C218.3 Compute the response of the beam by deflection method	3	3	2				1						3	2
		C218.4 Calculate the deflection of springs using tensile and compression tests	3		2										2	3
		C218.5 Infer the influence of heat treatment process in mechanical properties and micro structure	3	2					1						3	2
		C218.6 Apply specific testing methods for material characterization	3	2											3	2
		Average	**3**	**2**	**2**				**2.5**						**3**	**2**

ST.PETERS ENGINEERING COLLEGE

DEPARTMENT OF MECHANICAL ENGINEERING

Correlation between the Course outcomes and Program Outcomes A.Y. 2020-21

III- YEAR I SEM

COURSECODE	COURSENAME	COURSE OUTCOMES	PROGRAM OUTCOMES													
			1	2	3	4	5	6	7	8	9	10	11	12	Pso1	Pso2
ME501PC	DYNAMICS OF MACHINERY	C311.1 Analyze Dynamics of the three-dimensional particle motion in various coordinate systems: Cartesian, natural and cylindrical	3									2				
		C311.2 Ability to Describe the concepts of gyroscopic effects and effect of precision motion on the stability of moving vehicles and learn the concepts of static and dynamic force analysis of planar mechanisms.	3						2			3				
		C311.3 Solve the torque of friction-clutches, brakes and dynamometers and its importance	3			3									2	
		C311.4 Ability to describe the importance of turning moment diagrams, fly wheels	3			2										
		C311.5 Ability to Describe concepts of various governors and balancing of rotary and reciprocating mass its analysis.	3	3		2									2	
		C311.6 Ability to solve the simple free and forced damped vibrations	2	3		3									3	3
		Average	**2.8**	**3.0**		**2.2**			**2.0**			**2.5**			**2.3**	**3.0**
ME502PC	DESIGN OF MACHINE MEMBERS-I	C312.1 Knowledge about the principles of design and various theories of failures.	3	3		3										3
		C312.2 Ability to estimate the fluctuating loads using the Soderberg and Goodman techniques	3	3		3										
		C312.3 Design strength of riveted joints, welded and bolted joint	3	3	2										3	3
		C312.4 Design of keys, cotter and knuckle joints.	3	3		3									3	3
		C312..5 Ability to design shafts for various types of loading	3	3		3									3	3
		C312.6 Evaluate the importance of shaft and coupling.	3	3		3									2	
		Average	**3.0**	**3.0**	**2.0**	**3.0**									**2.7**	**3.0**
ME503PC	METROLOGY & MACHINE TOOLS	C313.1 Illustrate the concepts of metal cutting, chip formation, single point cutting tool geometry, basic parts and tool operations of Lathe machine	3	3	3	3	3									
		C313.2 Identify the basic parts, operations of machine	3	2	2	2	2									2

		tools like Drilling, Boring, Shaping, Slotting, Planing and estimating their machining times.															
		C313.3 Identify the abrasives, bonds and basic parts and operations of machine tools like Milling, Grinding, Lapping, Honing, broaching and estimating their machining times.	3	3	2	2	2									2
		C313.4 Illustrate concepts of measurements like limits, fits, tolerances, types of assemblies, linear, angular, optical, surface measuring instruments and gauges.	3	2	3	2	2									
		C313.5 Classify different methods of assessment of surface finish and symbols for indicating surface finish.	3	2	2	3	2									
		C313.6 Explain the concepts of measurement of screw thread, gear, alignment tests on lathe and co-ordinate measuring machines.	3	2	2	2	2									
		Average	**3.0**	**2.3**	**2.3**	**2.3**	**2.1**									**2.0**
SM504PC	**BUSINESS ECONOMICS & FINANCIAL ANALYSIS**	C314.1Understand the concepts of managerial economics and financial analysis for optimal decision making in business environment.	3	3	3											3
		C314.2 Analyze different forms of business organizations existing in the modern business.	3	3	3										2	
		C314.3 Design and implement different structures of market covering how price is determined under different market structures.	3	3												2
		C314.4 Understand the significance of demand, its analysis, measurement of demand and its forecasting.	3	2	2											
		C314.5 Apply the Principle of double entry to give an exposure to the maintenance of books of records and allocation of profits in an enterprise.	3	3	3						2					
		Average	**3.0**	**2.8**	**2.7**						**2.0**				**2.0**	**2.5**
ME505PC	**THERMAL ENGINEERING II**	C315.1 Able to calculate, Compare and Analyse the steam power cycles.	3	3	2	2									3	3
		C315.2 Able to define, select, HP Boilers, Mountings an5d accessories, draft systems, chimney, etc.	3	3	2	2									2	3

		C315.3 Able to calculate, compare and analysis the steam nozzles.	3	3	2	2									3	3
		C315.4 Able to describe the principle of steam turbines and reaction turbines, their mechanical details, velocity diagrams for steam turbine blades, etc. to design, size and selection for given applications.	3	3	2	2									2	3
		C315.5 Able to calculate, Compare, Analyse the steam condensers and Gas turbine power plants.	3	3	2	2									3	3
		C315.6 Able to explain and identify the thermal equipment's such as Jet and Rocket Propulsions.	3	3		2									2	3
		Average	**3**	**3**	**2**	**2**									**2.4**	**3**
ME506PC	**OPERATIONS RESEARCH**	C316.1 Students able to solve problems on linear programming	3	3		2									3	
		C316.2 Students able to solve problems on transportation and assignment models	3	2		3									2	
		C316.3 Students able to apply operations research concepts in the models of the sequencing and replacement	3	2		3									2	
		C316.4 Students able to solve the problems on theory of games and inventory	3	2		3									2	
		C316.5 Students able to solve the problems on simulation, waiting lines & Dynamic Programming.	3	2		3									3	
		Average	**3.00**	**2.20**		**2.80**									**2.40**	
ME507PC	**THERMAL ENGINEERING LAB**	C317.1 Compute the performance of IC Engines.	3	2					2						3	
		C317.2 Predict the characteristics of Fuels and Lubricates used in IC Engines.	3	2	2				2						3	
		C317.3 Compute the Performance of steam generator and turbine.	3	3											3	
		C317.4 Outline the valve timing diagram and port timing diagram of IC Engines.	3	2					2						2	
		C317.5 Compute the heat distribution in an IC engine and steam generator	3	2					2						3	
		C317.6 Predict the significant factors affecting the performance of IC engine and steam generators	3	2											3	
		Average	**3.0**	**2.2**	**2.0**				**2.0**						**2.8**	
ME508PC	**METROLOGY & MACHINE TOOLS LAB**	C318.1Illustrate the step turning operations on lathe.	3	3	3	3	3				3					3
		C318.2Illustrate the Tapper turning operations on lathe.	3	3	3	3	3				3					3
		C318.3Illustrate the thread cutting and Knurling operations on lathe.	3	3	3	3	3				3					3

		C318.4 Practice on manufacturing of components using lathe and alignment tests.	3	3	3	3	3				3					3
		C318.5 Practice on manufacturing of components using tally surface equipment.	3	3	3	3	3				3					3
		C318.6 Practice on manufacturing of components using alignments and tests of equipment.	3	3	3	3	3				3					3
		Average	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**				**3.0**					**3.0**
ME509PC	**KINEMATICS & DYNAMICS LAB**	C319.1 Analyze Dynamics of the three-dimensional particle motion in various coordinate systems: Cartesian, natural and cylindrical	3									2				
		C319.2 Ability to Describe the concepts of gyroscopic effects and effect of precision motion on the stability of moving vehicles and learn the concepts of static and dynamic force analysis of planar mechanisms.	3						2			3				
		C319.3 Solve the torque of friction-clutches, brakes and dynamometers and its importance	3			3									2	
		C319.4 Ability to describe the importance of turning moment diagrams, fly wheels	3			2										
		C319.5 Ability to Describe concepts of various governors and balancing of rotary and reciprocating mass its analysis.	3	3		2									2	
		C319.6 Ability to solve the simple free and forced damped vibrations	2	3		3									3	3
		Average	**2.8**	**3.0**		**2.2**			**2.0**			**2.5**			**2.3**	**3.0**
ME510	**INTELLECTUAL PROPERTY RIGHTS**	C3110.1 Students are able to explain the different types of intellectual properties including trademarks, copyrights and patents.	3	2	2										2	
		C3110.2 Students are able to identify protectable content under trademarks,register for trademarks, understand and resolve trademark infringement cases.	1	3	2										2	
		C3110.3 Students are able to explain copyrightable content, register for copyrights and determine copyright ownership issues.	1	2	3										2	
		C3110.4 Students are able to determine trade secrecy, choose the appropriate methods for maintaining secrecy and to prevent unfair trading practices.	3	1	1	2										2
		C3110.5 Students is able to describe the new developments in international trademark law, copyright law.	3	2	1		2									2
		C3110.6 Students is able to describe the new developments in international patent law.	2		3		2								2	
		Average	**2.1**	**2**	**1.8**	**2**	**2**								**2**	**2**

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IV YEAR – I SEM

COURSECODE	COURSENAME	COURSE OUTCOMES	1	2	3	4	5	6	7	8	9	10	11	12	Pso1	Pso2
ME701PC	CAD/CAM	C411.1: Students will be able to Describe the peripherals of computer aided system.	3	1			2									1
		C411.2: Students will be able to Model engineering components by applying solid modeling techniques.			2	2	3					1			2	
		C411.3 : Students will be able to Write NC and CNC programming code by applying principles of Numerical Control systems.			2	1	3					1			1	
		C411.4: Students will be able to Describe the concept of part family and methods of identifying the part families.	1		2	1	3									
		C411.5: Students will be able to Describe computer aided process planning and various computer aided inspection methods in quality control.	1	2		3	2									2
		C411.6 : Students will be able to Describe computer integrated manufacturing and its basic components.	1				1			1			3			
		Average	**1.5**	**1.5**	**2**	**1.7**	**2.8**			**1**		**1**	**3**		**1.5**	**1.5**
ME702PC	INSTRUMENTATION AND CONTROL SYSTEM	C412.1. Identify various elements and their purpose in typical instruments (Remember)	3									2				1
		C412.2. Analysis of errors so as to determine correction factors for each instrument. (Analysis)	2									3			3	
		C412.3. Understand static and dynamic characteristics of instrument and should be able to determine loading response time. (Understand)	1	2			3									
		C412.4. Explain transducer regarding accuracy and loading time. (Understand)	1			2			3							
		C412.5. Analyze the control system for control of position, temperature, acceleration & process control. (Analysis)			1			2			3					
		C412.6. Analyze the measuring system for the measurement of Flow and liquid level. (Analysis)		3			2		1							
		Average	**1**	**2.3**	**2**	**2**	**2.3**	**2.5**	**2**		**3**					

ME723PE	**POWER PLANT ENGINEERING**	C413.1Students able to explain the energy sources and conversion methods, concepts	2	3		2							2		2	
		C413.2 Students able to explain the various types of re-heat, re-generation power consumption methods energy sources and conversion methods.	3	2		3							2		2	
		C413.3 Students able to apply power plant engineering concepts in the model of the Assignment Problems	3	3		2							2		2	
		C413.4 Student able to Classify Hydro electric power plant, hydro cycles and its applications.	3	2		3							2		2	
		C413.4 Students able to explain wind energy, HAWT, VAWT, tidal energy	3	3		1		3					2		2	
		C413.5 Students able to explain wind energy, HAWT, VAWT, tidal energy	3	3		1		3					2		2	2
		Average	**2.8**	**2.6**		**2.0**		**3.0**					**2.0**		**2.0**	**2.0**
ME734PE	**CNC TECHNOLOGY**	C414.1 Tell about the constructional features of CNC machine tools	3	3	3			3	3	3					3	3
		C414.2 Choose to CNC programs for popular CNC control system.	3	3	3			3	3	3					3	3
		C414.3 Develop skill tooling and work holding devices for CNC machine tools	3	3	3			3	2	3					3	3
		C414.4 Easy to identify with the DNC adaptive control systems	3	3	3			3	3	2					3	3
		C414.5 Examine the hardware components of PLC.	3	3	2			3	3	3					3	3
		C414.6 Develop the drives and positional transducers used in CNC machine tools	3	3	2			3	2	2					3	3
		Average	**3**	**3**	**2.6**			**3**	**2.6**	**2.6**					**3**	**3**
ME741PE	**MECHANICAL VIBRATIONS**	C415.1student will be able to, Understand the causes and effects of vibration in mechanical systems.	3	3	2	2		3	3						3	
		C415.2Develop schematic models for physical systems and formulate governing equations of motion.	3	3	2	2		3	3						2	
		C415.3Understand the role of damping, stiffness and inertia in mechanical systems	3	3	2	2		3	2						3	
		C415.4Analyze rotating and reciprocating systems and compute critical speeds.	3	3	2	2		3	3						2	
		C415.5Analyze and design machine supporting structures, vibration isolators and absorbers.	3	3	2	2		3	3						3	
		C415.6Develop schematic models for physical systems and formulate Coupling equations and vibrations.	3	3	2	2		3	2						2	
		Average	**3**	**3**	**2**	**2**		**3**	**2.6**						**2.4**	
ME 703PC	**CAD/CAM LAB**	C416.1 Draw the 2D & isometric views of different	3	2							3				1	1

		figures using Autocad software														
		C416.2 Design a 3D geometry using AutoCad		3	2	1					3					
		C416.3 Calculate stresses on 2D components using Ansys software.	2		3						3					2
		C416.4 Calculate stress, strain, harmonic analysis on components using Ansys software	3	2							3					
		C416.5 Conduct Thermal analysis on components using Ansys software	1	3							3					
		C416.6 Write a process sheet &Produce a component using CNC Turning & Milling machine.	1	3							3					
		Average	**2.0**	**2.6**	**2.5**	**1.0**					**3.0**				**1.0**	**1.5**
ME704PC	**ICS LAB**	C417.1. Identify various elements and their purpose in typical instruments (Remember)	3									2				1
		C417.2. Analysis of errors so as to determine correction factors for each instrument. (Analysis)	2									3			3	
		C417.3. Understand static and dynamic characteristics of instrument and should be able to determine loading response time. (Understand)	1	2			3									
		C417.4. Explain transducer regarding accuracy and loading time. (Understand)	1			2			3							
		C417.5. Analyze the control system for control of position, temperature, acceleration & process control. (Analysis)			1			2			3					
		C417.6. Analyze the measuring system for the measurement of Flow and liquid level. (Analysis)		3			2		1							
		Average	**1**	**2.3**	**2**	**2**	**2.3**	**2.5**	**2**		**3**					