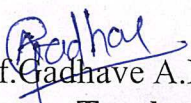


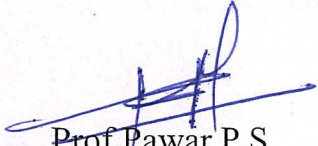


**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

Course Name :	Solid Mechanics	Course Code :	202041
CO's No	CO Statements		
CO 202041.1	DEFINE various types of stresses and strain developed on determinate and indeterminate members.		
CO 202041.2	DRAW Shear force and bending moment diagram for various types of transverse loading and support.		
CO 202041.3	COMPUTE the slope & deflection, bending stresses and shear stresses on a beam.		
CO 202041.4	CALCULATE torsional shear stress in shaft and buckling on the column.		
CO 202041.5	APPLY the concept of principal stresses and theories of failure to determine stresses on a 2-D element.		
CO 202041.6	UTILIZE the concepts of SFD & BMD, torsion and principal stresses to solve combined loading application based problems.		

  
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## DEPARTMENT OF MECHANICAL ENGINEERING

### SE MECH (2019 Pattern)

<b>Course Name :</b>	Solid Modeling and Drafting	<b>Course Code :</b>	202042
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202042.1</b>	UNDERSTAND basic concepts of CAD system, need and scope in Product Lifecycle Management		
<b>CO 202042.2</b>	UTILIZE knowledge of curves and surfacing features and methods to create complex solid geometry		
<b>CO 202042.3</b>	CONSTRUCT solid models, assemblies using various modeling techniques & PERFORM mass property analysis, including creating and using a coordinate system		
<b>CO 202042.4</b>	APPLY geometric transformations to simple 2D geometries		
<b>CO 202042.5</b>	USE CAD model data for various CAD based engineering applications viz. production drawings, 3D printing, FEA, CFD, MBD, CAE, CAM, etc.		
<b>CO 202042.6</b>	USE PMI & MBD approach for communication		

  
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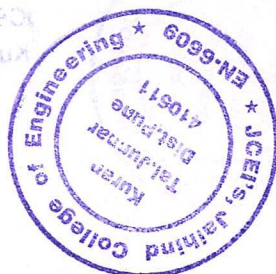


**DEPARTMENT OF MECHANICAL ENGINEERING**

**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Engineering Thermodynamics	<b>Course Code :</b>	202043
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202043.1</b>	DESCRIBE the basics of thermodynamics with heat and work interactions.		
<b>CO 202043.2</b>	APPLY laws of thermodynamics to steady flow and non-flow processes.		
<b>CO 202043.3</b>	APPLY entropy, available and non available energy for an Open and Closed System,		
<b>CO 202043.4</b>	DETERMINE the properties of steam and their effect on performance of vapour power cycle.		
<b>CO 202043.5</b>	ANALYSE the fuel combustion process and products of combustion.		
<b>CO 202043.6</b>	SELECT various instrumentations required for safe and efficient operation of steam generator.		

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**DEPARTMENT OF MECHANICAL ENGINEERING**

**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Engineering Materials and Metallurgy	<b>Course Code :</b>	202044
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202044.1</b>	COMPARE crystal structures and ASSESS different lattice parameters.		
<b>CO 202044.2</b>	CORRELATE crystal structures and imperfections in crystals with mechanical behaviour of materials.		
<b>CO 202044.3</b>	DIFFERENTIATE and DETERMINE mechanical properties using destructive and non-destructive testing of materials.		
<b>CO 202044.4</b>	IDENTIFY & ESTIMATE different parameters of the system viz., phases, variables, component, grains, grain boundary, and degree of freedom. etc.		
<b>CO 202044.5</b>	ANALYSE effect of alloying element & heat treatment on properties of ferrous & nonferrous alloy.		
<b>CO 202044.6</b>	SELECT appropriate materials for various applications.		

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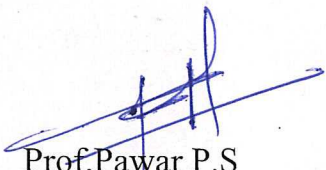
## DEPARTMENT OF MECHANICAL ENGINEERING

### SE MECH (2019 Pattern)

<b>Course Name :</b>	Electrical and Electronics Engineering	<b>Course Code :</b>	203156
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 203156.1</b>	APPLY programming concepts to UNDERSTAND role of Microprocessor and Microcontroller in embedded systems		
<b>CO 203156.2</b>	DEVELOP interfacing of different types of sensors and other hardware devices with Atmega328 based Arduino Board		
<b>CO 203156.3</b>	UNDERSTAND the operation of DC motor, its speed control methods and braking		
<b>CO 203156.4</b>	DISTINGUISH between types of three phase induction motor and its characteristic features		
<b>CO 203156.5</b>	EXPLAIN about emerging technology of Electric Vehicle (EV) and its modular subsystems		
<b>CO 203156.6</b>	CHOOSE energy storage devices and electrical drives for EVs		

  
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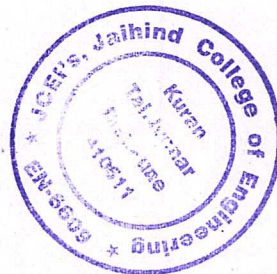




**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Geometric Dimensioning and Tolerancing Lab	<b>Course Code :</b>	202045
<b>CO's No</b>	<b>CO Statements</b>		
CO 202045.1	SELECT appropriate IS and ASME standards for drawing		
CO 202045.2	READ & ANALYSE variety of industrial drawings		
CO 202045.3	APPLY geometric and dimensional tolerance, surface finish symbols in drawing		
CO 202045.4	EVALUATE dimensional tolerance based on type of fit, etc.		
CO 202045.5	SELECT an appropriate manufacturing process using DFM, DFA, etc.		

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**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Engineering Mathematics - III	<b>Course Code :</b>	207002
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 207002.1</b>	SOLVE higher order linear differential equations and its applications to model and analyze mass spring systems.		
<b>CO 207002.2</b>	APPLY Integral transform techniques such as Laplace transform and Fourier transform to solve differential equations involved in vibration theory, heat transfer and related mechanical engineering applications.		
<b>CO 207002.3</b>	APPLY Statistical methods like correlation, regression in analyzing and interpreting experimental data applicable to reliability engineering and probability theory in testing and quality control.		
<b>CO 207002.4</b>	PERFORM Vector differentiation & integration, analyze the vector fields and APPLY to fluid flow problems.		
<b>CO 207002.5</b>	SOLVE Partial differential equations such as wave equation, one and two dimensional heat flow equations.		

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**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Kinematics of Machinery	<b>Course Code :</b>	202047
<b>CO's No</b>	<b>CO Statements</b>		
CO 202047.1	APPLY kinematic analysis to simple mechanisms		
CO 202047.2	ANALYZE velocity and acceleration in mechanisms by vector and graphical method		
CO 202047.3	SYNTHESIZE a four bar mechanism with analytical and graphical methods		
CO 202047.4	APPLY fundamentals of gear theory as a prerequisite for gear design		
CO 202047.5	CONSTRUCT cam profile for given follower motion		

  
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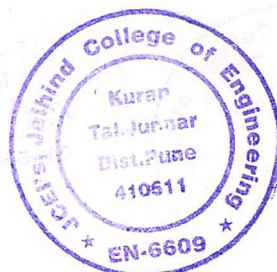


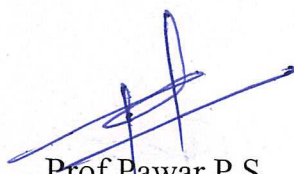


**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Applied Thermodynamics	<b>Course Code :</b>	202048
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202048.1</b>	DETERMINE COP of refrigeration system and ANALYZE psychrometric processes.		
<b>CO 202048.2</b>	DISCUSS basics of engine terminology, air standard, fuel air and actual cycles.		
<b>CO 202048.3</b>	IDENTIFY factors affecting the combustion performance of SI and CI engines.		
<b>CO 202048.4</b>	DETERMINE performance parameters of IC Engines and emission control.		
<b>CO 202048.5</b>	EXPLAIN working of various IC Engine systems and use of alternative fuels.		
<b>CO 202048.6</b>	CALCULATE performance of single and multi stage reciprocating compressors and DISCUSS rotary positive displacement compressors		

  
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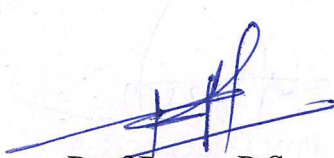


**DEPARTMENT OF MECHANICAL ENGINEERING**  
**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Fluid Mechanics	<b>Course Code :</b>	202049
<b>CO's No</b>	<b>CO Statements</b>		
CO 202049.1	DETERMINE various properties of fluid		
CO 202049.2	APPLY the laws of fluid statics and concepts of buoyancy		
CO 202049.3	IDENTIFY types of fluid flow and terms associated in fluid kinematics		
CO 202049.4	APPLY principles of fluid dynamics to laminar flow		
CO 202049.5	ESTIMATE friction and minor losses in internal flows and DETERMINE boundary layer formation over an external surface		
CO 202049.6	CONSTRUCT mathematical correlation considering dimensionless		

  
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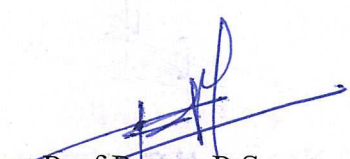




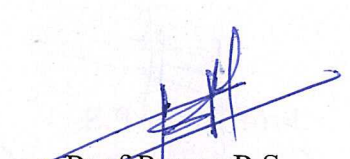
**DEPARTMENT OF MECHANICAL ENGINEERING**

**SE MECH (2019 Pattern)**

<b>Course Name :</b>	Manufacturing Processes	<b>Course Code :</b>	202050
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202050.1</b>	SELECT appropriate moulding, core making and melting practice and estimate pouring time, solidification rate and DESIGN riser size and location for sand casting process		
<b>CO 202050.2</b>	UNDERSTAND mechanism of metal forming techniques and CALCULATE load required for flat rolling		
<b>CO 202050.3</b>	DEMONSTRATE press working operations and APPLY the basic principles to DESIGN dies and tools for forming and shearing operations		
<b>CO 202050.4</b>	CLASSIFY and EXPLAIN different welding processes and EVALUATE welding characteristics		
<b>CO 202050.5</b>	DIFFERENTIATE thermoplastics and thermosetting and EXPLAIN polymer processing techniques		
<b>CO 202050.6</b>	UNDERSTAND the principle of manufacturing of fibre-reinforce composites and metal matrix composites		

  
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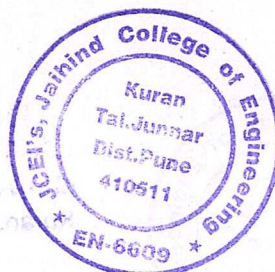


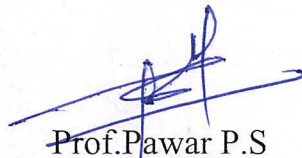
## DEPARTMENT OF MECHANICAL ENGINEERING

### SE MECH (2019 Pattern)

<b>Course Name :</b> Machine Shop	<b>Course Code :</b> 202051
<b>CO's No</b>	<b>CO Statements</b>
CO 202051.1	PERFORM welding using TIG/ MIG/ Resistance/Gas welding technique
CO 202051.2	MAKE Fibre-reinforced Composites by hand lay-up process or spray lay-up techniques
CO 202051.3	PERFORM cylindrical/surface grinding operation and CALCULATE its machining time
CO 202051.4	DETERMINE number of indexing movements required and acquire skills to PRODUCE a spur gear on a horizontal milling machine
CO 202051.5	PREPARE industry visit report
CO 202051.6	UNDERSTAND procedure of plastic processing

  
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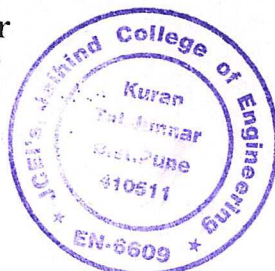


## DEPARTMENT OF MECHANICAL ENGINEERING

### SE MECH (2019 Pattern)

<b>Course Name :</b>	Project Based Learning - II	<b>Course Code :</b>	202052
<b>CO's No</b>	<b>CO Statements</b>		
<b>CO 202052.1</b>	IDENTIFY the real-world problem (possibly of interdisciplinary nature) through a rigorous literature survey and formulate / set relevant aims and objectives.		
<b>CO 202052.2</b>	ANALYZE the results and arrive at valid conclusions.		
<b>CO 202052.3</b>	PROPOSE a suitable solution based on the fundamentals of mechanical engineering by possibly integration of previously acquired knowledge.		
<b>CO 202052.4</b>	CONTRIBUTE to society through proposed solutions by strictly following professional ethics and safety measures.		
<b>CO 202052.5</b>	USE of technology in proposed work and demonstrate learning in oral and written form.		
<b>CO 202052.6</b>	DEVELOP ability to work as an individual and as a team member.		

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