Sri Ramakrishna Mission Vidyalaya College of Arts and Science
B.Voc in Production Technology (Tool & Die)

PROGRAMME COURSE OUTCOMES:

The Department of Production Technology (Tool & Die) provides the practical learning environment for the students which aim to meet out the industrial requirements in the field of Production and Manufacturing by providing more practical exposures and on job trainings.

The program Educational Objectives are as follows:

PO1: Provide graduates with the fundamental knowledge in science and mathematics required to understand the principles of Engineering.

PO2: Develop creative and innovative thinking ability of the students which are required for industry.

PO3: Create a technically skilled employee by imparting theoretical, practical and on job training to students.

PO4: Imparting the leadership qualities required for team work, production planning, decision making and industrial safety, so that they are work ready at exit point of the programme.

PO5: Create well disciplined and responsible citizens for the overall welfare of our nation.

PROGRAMME SPECIFIC COURSE OUTCOMES:

PSO1: Ability to apply the knowledge of basic engineering principles in tool and die making.

PSO2: An ability to use the techniques, skills and modern engineering tools.

PSO3: An ability to design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

PSO4: An ability to function on multidisciplinary teams.

PSO5: Ability to use techniques, Skills and modern engineering tools required to develop new product with updated features and improved performance.

Course Title : Basics of Production Engineering **Course code : 20KUP1C01**

COURSE OUTCOMES:

CO1	Understand the basic concepts of Manufacturing	**K1 & K2**
CO2	Develop the knowledge in various casting technologies, measurement, properties of different materials, metal forming and powder metallurgy.	**K2 &K3**
CO3	Explain principles and process of Forging, Rolling, Extrusion, drawing and designingof die	**K2&K4**
CO4	Acquire an overview of mechanical measurement systems and principle of instruments for motion and dimensionmeasurement.	**K2,K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	S	M	L		S	S	S	L	S
CO4	M	S	S	M	L		S	M	S	L	M

S – Strong; M – Medium; L - Low

Course Title : Production Technology - I **Course code : 20KUP1C02**

COURSE OUTCOMES:

CO1	Develop the ideas to do any type of fitting in metal components.	**K1 & K2**
CO2	Gain knowledge to operate a lathe to produce any component.	**K1, K2, K3**
CO3	Understand the importance to work safety in a workshop.	**K1, K2, K3**
CO4	Deliberate features and applications of reciprocating machine tools like shaper, planer andslotting machine	**K1,K2&K3**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	M	S	S		S	S	S	S	M
CO4	M	M	S	S	L		S	S	M	S	S

S – Strong; M – Medium; L - Low

Course Title : Production Technology - II **Course code : 20KUP2C03**

COURSE OUTCOMES:

CO1	Gain knowledge to operate all the special machines used in production.	**K1 , K2, K3**
CO2	Understand concepts of machining for selection of appropriate machining parameters, and cutting tools for Milling Machine.	**K1, K2, K3**
CO3	Gain the knowledge to utilize the tools of grinding wheels.	**K1, K2, K3**
CO4	Exhibit operation such as Turning, Facing, Threading, Knurling and Grooving onCentre Lathe.	**K1, K2, K3**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	M	S	S	M	L		S	S	S	M	L
CO4	M	S	M	M	L		S	S	M	S	S

S – Strong; M – Medium; L – Low

Course Title : Practical - I - Production Technology - I Course code : 20KUPT2P1

COURSE OUTCOMES:

CO1	Create the new ideas and knowledge about fitting and lathe.	**K1& K2**
CO2	Identify the appropriate production process and machines.	**K1 & K2**
CO3	Explicate the working principle of various machines used in manufacturing.	**K2,K3&K4**
CO4	Understand the methods of various methods of operations in fitting and lathe.	**K1, K2&K3**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	M	S	S	S	M		S	S	S	S	M
CO4	M	S	M	S	M		S	S	S	S	M

S – Strong; M – Medium; L - Low

Course Title : Practical - II - Production Technology - II Course code : 20KUPT2P2

COURSE OUTCOMES:

CO1	Create the new ideas and knowledge about milling machines.	**K1 & K2**
CO2	Expose the safety aspects with respect to man, machine and tools.	**K1 & K2**
CO3	Understand the methods of various methods of operations in milling machines.	**K2, K3**
CO4	Perform finishing operation on flat surfaces using surface grinding machine and Cylindrical grinding attachment.	**K2, K3& K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	S	S	L		S	S	S	M	M
CO4	S	S	S	S	M		S	S	S	M	M

S – Strong; M – Medium; L – Low

Course Title : Internship Training-I Course code : 20KUPT2I1

COURSE OUTCOMES:

CO1	Exposed to an organization overview.	**K1, K2**
CO2	Develop the knowledge in various casting technologies, measurement, properties of different materials, metal forming and powder metallurgy.	**K2, K3**
CO3	Get awareness about general safety requirements in the industry.	**K2 & K3**
CO4	Understand the rules and regulations of Industry.	**K1,K2 & K3**
CO5	Handling of Equipments, Tools and instruments used in industry.	**K1,K2,K3**
CO6	Practical exposure to handle abnormal & unusual conditions in industry.	**K1,K2&K3**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	M	S	S		S	S	S	S	M
CO4	S	S	M	S	M		S	S	S	S	M

CO5	S	S	M	S	M		S	S	S	S	M
CO6	S	S	M	S	M		S	S	S	S	M

S – Strong; M – Medium; L – Low

Course Title : Advanced Production Technology **Course code : 20KUP3C04**
COURSE OUTCOMES:

CO1	Recognize commonly used terminology and componentry utilized in injection molding.	**K1,K2&K4**
CO2	Develop knowledge to operate CNC machines, EDM and IM machines.	**K1,K2&K3**
CO3	Learning a part program for any component and setting up in machines.	**K1,K2, K3&K4**
CO4	Understand and find the ideas to select the AM process for a particular job.	**K1,K2&K3**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1											
CO2	M	S	M	S	M		S	M	M	M	L
CO3	S	S	S	S	M		S	S	S	S	M
CO4	S	S	M	S	S		S	S	S	S	M

S – Strong; M – Medium; L - Low

Course Title : Practical - III - Advanced Production Technology
Course code : 20KUPT3P3
COURSE OUTCOMES:

CO1	Create the new ideas and knowledge about CNC EDM machines.	**K1,K2,K3&K4**
CO2	Understand the methods of various methods of operations in CNC machines.	**K1,K2, K3&K4**
CO3	Develop new ideas and knowledge about EDM machines.	**K1,K2, K3&K4**
CO4	Fathom various methods of operations in EDM machines.	**K1,K2, K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L

CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	S	S	M		S	S	S	S	M
CO4	S	S	S	S	M		S	S	S	S	M

S – Strong; M – Medium; L – Low

Course Title : Drafting And Plotting **Course code : 20KUP4C06**

COURSE OUTCOMES:

CO1	Developing the knowledge to create and edit the designs.	**K1 & K2**
CO2	Appreciate the standard drawing codes and practices which is required for producing engineering drawings.	**K1K2,K3&K4**
CO3	Understand the concepts of design outputs.	**K2, K3&K4**
CO4	Relate AutoCAD knowledge to current applications used in the modern world.	**K2,K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	M	S	S	S	L		S	S	M	M	S
CO4	S	S	S	S	L		S	S	M	M	S

S – Strong; M – Medium; L - Low

Course Title : Practical - IV - Drafting and Plotting **Course code : 20KUPT4P4**

COURSE OUTCOMES:

CO1	Create the new ideas and knowledge about AutoCAD software's.	**K1 & K2**
CO2	Develop the graphical skills for communication of concepts, ideas and design of engineering products through technical drawings	**K1 ,K2& K3**
CO3	Able to draw Ellipse, Parabola, Hyperbola & Cycloid drawing.	**K1 ,K2& K3**
CO4	Understand the methods of various methods and commends in AutoCAD software's.	**K2, K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	M	S

CO3	M	S	S	S	L		M	S	S	M	S
CO4	M	S	S	S	L		M	S	S	M	S

S – Strong; M – Medium; L - Low

Course Title : INTERNSHIP TRAINING-II **Course code : 20KUPT4I2**

COURSE OUTCOMES:

CO1	Developing the planning approach to prepare programme in CNC Machine	**K1 & K2**
CO2	Prepare and Coordinate the plan of Machine.	**K2, K3&K4**
CO3	Gain self-confidence and able to co-ordinate with others.	**K2, K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	M	S	S		S	S	S	S	M

S – Strong; M – Medium; L - Low

Course Title : Tool Design - I **Course code : 20KUP5C08**

COURSE OUTCOMES:

CO1	Understand clearly the tool design parameters of Jigs, fixtures and Gauges	**K1 & K2**
CO2	Develop the knowledge to differentiate jig and fixture	**K2 & K3**
CO2	Create ideas to draw the design of jig or fixture for a special purpose	**K2 & K3**
CO3	Understand the different types of Fixtures and Gauges	**K1 & K2**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	M	S	S	M	M		S	S	S	M	M
CO4	M	S	M	S	M		S	M	M	M	L

S – Strong; M – Medium; L - Low

Course Title : Practical - V - Design and Manufacturing Course code : 20KUPT5P5

COURSE OUTCOMES:

CO1	Create the new ideas and knowledge about Creo software.	**K1 & K2**
CO2	Understand the various methods and commends in Creo software's.	**K2, K3 &K4**
CO3	Understand design generative & interactive drafting in Creo software.	**K2, K3 &K4**
CO4	Know the Complete details of Sketching module tools such as lines, Arc, Ellipse, and Polygon etc.	**K2, K3 &K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	M	S	S	M	M		S	M	S	M	L
CO4	S	S	S	S	M		S	S	S	S	M

S – Strong; M – Medium; L – Low

Course Title : Tool Design - II Course code : 20KUP6C10

COURSE OUTCOMES:

CO1	Understand the concepts of design for Die Casting Process.	**K1 & K2**
CO2	Analyze and access the use of casting processes in manufacturing andunderstand the working of various casting processes	**K2,K3 &K4**
CO3	Describe methods of Injection Moulding Processes.	**K1 & K2**
CO4	Developing the knowledge in design concepts for Injection Moulding Process.	**K2,K3 &K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	**PSO2**	**PSO3**	**PSO4**	**PSO5**		**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	M	S	M	S	M		S	M	M	M	L
CO2	M	S	S	M	M		S	S	S	M	S
CO3	S	S	S	S	M		S	S	S	S	M
CO4	S	S	S	M	M		S	S	S	M	S

S – Strong; M – Medium; L – Low

Course Title : Project **Course code : 20KUPT6PR**

COURSE OUTCOMES:

CO1	Understand the basic concepts & broad principles of Industrial projects.	**K2, K3& K4**
CO2	Develop the Production Plan.	**K1, K2, K3& K4**
CO3	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach	**K1, K2, K3& K4**
CO4	Develop the design knowledge of Tool, Die, Jig and Fixture working model suitable for real practical environment.	**K1,K2, K3 & K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	M	S	S		S	S	S	S	M
CO4	S	S	M	S	M		S	S	S	S	M

S – Strong; M – Medium; L - Low

Course Title : Internship Training-III **Course code : 20KUPT6I3**

COURSE OUTCOMES:

CO1	Gain practical knowledge along with work experience in addition to their academic credits	**K1 & K2**
CO2	Develop the skills which are required to get employment or to become an Entrepreneur.	**K1, K2, K3**
CO3	Develop communication, interpersonal and other required skills in the job interview process.	**K2, K3&K4**

K1 - Remember; K2 - Understand; K3 - Apply; K4 – Analyze

	PSO1	PSO2	PSO3	PSO4	PSO5		PO1	PO2	PO3	PO4	PO5
CO1	M	S	M	S	M		S	M	M	M	L
CO2	S	S	S	S	M		S	S	S	S	M
CO3	S	S	M	S	S		S	S	S	S	M
CO4	S	S	M	S	M		S	S	S	S	M

S – Strong; M – Medium; L - Low

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