

**DEPARTMENT OF PRODUCTION ENGINEERING  
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

<b>Programme and specialization</b>	<b>B TECH Production Engineering</b>			
<b>Course Title</b>	<b>TOOLING FOR MANUFACTURING</b>			
<b>Course Code</b>	<b>PRPC21</b>	<b>No. of Credits</b>	<b>04</b>	
<b>Pre-requisite subject(s)</b>	<b>REFER Curriculum</b>			
<b>Session</b>	<b>July 2018</b>	<b>Section</b>	<b>A</b>	
<b>Name of Faculty</b>	<b>Dr S Kumanan</b>	<b>Department</b>	<b>Production</b>	
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<b>Course Type</b>	<input checked="" type="checkbox"/> <b>Core course</b>	<input type="checkbox"/> <b>Elective course</b>		
Syllabus (as approved in BoS)				
<a href="https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf">https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf</a> Page 27,28				
<b>COURSE OBJECTIVES</b>				
<a href="https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf">https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf</a> Page 27				
<b>COURSE OUTCOMES (CO)</b>				
<a href="https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf">https://www.nitt.edu/home/academics/curriculum/B.Tech-PR-2016.pdf</a> Page 28				
<b>COURSE OVERVIEW</b>				
Design of cutting tools, form tool, drill etc Economics of Tooling Design of jigs, fixtures and press tools for all classes of manufacturing				
<b>COURSE TEACHING AND LEARNING ACTIVITIES (Refer Enclosed)</b>				
<b>COURSE ASSESSMENT METHODS (shall range from 4 to 6)</b>				
<b>S.No.</b>	<b>Mode of Assessment</b>	<b>Week</b>	<b>Duration</b>	<b>% Weightage</b>
1	Cycle Test I		1 hour	15
2	Cycle Test ii			15
3	Class Assignm,ent	Every Week		20
CPA	Compensation Assessment*		1 hour	--
4	Final Assessment *			50
<b>COURSE EXIT SURVEY FEED BACK FORM</b>				
MODE OF CORRESPONDENCE Class and office in person COMPENSATION ASSESSMENT POLICY Only on Medical Grounds with prior intimation				
<b><u>ATTENDANCE POLICY</u> As Per Institute Norms</b>				

## COURSE TEACHING AND LEARNING ACTIVITIES

Sessions	Lesson	Title	Contact hours	Method
1.	1	Introduction to Tooling for Manufacturing	1	Chalk & talk
2.	2	Metal cutting fundamentals & tool materials	1	PPT videos
3.	3, 4	Turning, drilling & milling operations	2	Tutorial Videos
4.	5	Estimation of machining time Turning	1	Tutorial
5.	6	Estimation of machining time Drilling and Milling	1	Tutorial
6.	7, 8	Milling cutters, turning fixtures, drilling jigs	2	Design Tutorial
7.	9	Pre-design analysis of jigs and fixtures	1	PPT Chalk and Talk
8.	10	Locators and clamps	1	PPT
9.	11, 12	Design of jigs and fixtures	2	Design Tutorial
10.	13	Review on tooling for manufacturing	1	PPT videos
11.	14	Workholding devices, drilling jigs	1	PPT
12.	15, 16	Tooling for automats / layout	2	Design Tutorial
13.	17	Broaching fixtures and welding fixtures	1	PPT and videos
14.	18	Modular fixtures	1	PPT and videos
15.	19, 20	Assembly fixtures, broaching, welding, grinding fixture	2	Design Tutorial
16.	21	Linear, angular, form, surface finish measurement	1	PPT videos
17.	22, 23	Measurement systems	2	Design Tutorial
18.	24	Design of gauges	1	PPT
19.	25, 26	Design of gauges tutorial	2	Design Tutorial
20.	27	Press and forming processes	1	PPT
21.	28	Simple, compound, inverted, combination and progressive	1	PPT
22.	29, 30	Die Design, Centre of pressure concepts	2	Design Tutorial
23.	31	Blanking, punching die design, scrap strip layout	1	PPT
24.	32	Blanking, punching problems, compound, inverted, combo	1	PPT
25.	33	Evolution of progressive die set	1	PPT
26.	34, 35	Design of Bending die	2	Design Tutorial
27.	36	Forging die sets	1	PPT
28.	37	Press tools and die maintenance	1	PPT
29.	38	Extrusion and pressure die casting	1	PP
30.	39, 40	Design of drawing die	2	Design Tutorial