

K. Venkataraman

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# Design of Jigs, Fixtures and Press Tools

*Second Edition*



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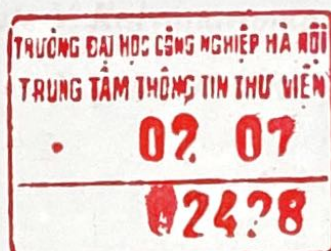
Springer



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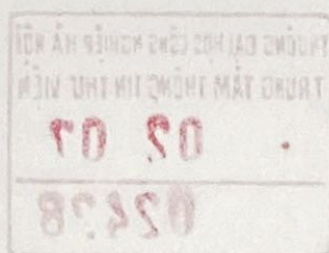


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# Foreword

The book, *Design of Jigs, Fixtures and Press Tools* by K. Venkataraman, is intended for undergraduate students in mechanical engineering and production/manufacturing Engineering. It is a treatise on two major topics in 'Tooling', viz. (a) Jigs and Fixtures and (b) Press Tools and thus makes it comprehensive for undergraduate students of mechanical engineering and allied branches. The book covers all the major topics in the subject. Some of the salient features of the book are as follows:

- Exhaustive illustrations covering almost all variants in the subject of jigs, fixtures and press tools.
- An appendix at the end of Part I of the book dealing with the mechanics of cutting tool operation and the forces involved in various tools such as turning, milling, drilling and broaching.
- An appendix on worked examples for the first part showing the 2D drawings of the typical jigs/fixtures as well as a 3D model of a jig will be very useful for the beginner.
- 3D models of fixtures such as (a) a common vise used in milling operations, (b) three-jaw chuck and in the field of press tools a model of a progressive die with associated components for making the students understand the concepts better.
- The final chapter in Part II showing typical worked examples of drawing dies.
- Separate appendices giving suggested questions and answers in both the parts to facilitate review of the subject by the students.

I am sure that this book will go a long way in filling the long-felt gap by covering both the topics of tooling under one cover. I congratulate the author for this effort and hope the students make full use of it.

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# Preface

The subject 'Tooling' encompasses areas such as (i) cutting tools (ii) gauges, (iii) jigs and fixtures and (iv) press tools. Each of these fields is very vast. To become a successful professional, be it a designer or a production or manufacturing engineer, the student needs to have an in-depth knowledge of all the above topics. In addition to the expertise needed in such specific areas, knowledge of materials science, costing and economics and computer modelling of components and sub-systems is also essential.

The present book, *Design of Jigs, Fixtures and Press Tools*, is aimed at providing the introductory knowledge on the subject to the undergraduate students of mechanical and manufacturing engineering of Anna University. Many of the universities in India prescribe a syllabus that contains both design of jigs and fixtures and design of press tools in a single semester course. Keeping the above in mind, this book is designed in two parts. Part I deals with jigs and fixtures, and Part II is earmarked exclusively for the study of press tools. Both these subjects are built progressively in successive chapters. A separate appendix in each part provides short answer questions with answers, which will help the students in clarifying doubts and strengthen their knowledge base. The explanatory notes and illustrations provided in the book will serve the purpose of awakening the interest of the students and invoking in them the passion for tooling in their study of mechanical, manufacturing or production engineering.

Finally, I wish to express my gratitude to the Anna University for providing support in my endeavour to write a book on the subject.

Chennai, India

K. Venkataraman



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