

GA 1209

Impositions, Plates & Proofs

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Introduction:

Thad has developed NAK Integrated Marketing Inc., into an internationally known, innovative, integrated marketing resources. Addressing the highly sophisticated B2B and B2C customer and the print provider, Thad is an acknowledged expert in converting analog marketing efforts into a highly effective, lower cost/higher profit digital (print and online) based programs. Thad has been at the forefront, turning emerging marketing technologies into sales and profit generating tools, often linking offline and online technologies into a seamless and powerful print based marketing initiative. Utilizing the latest personalization technologies, including 2D bar codes, SMS, cross media marketing strategies and augmented reality, NAK has expanded the profits for a broad spectrum of national and international firms.

Thad is also the founder of The Institute For Media Convergence, for additional information look to tifmc.org or nakinc.com.

GA 1209

Impositions, Plates & Proofs

Introduce Yourself

GA 1209

Impositions, Plates & Proofs

Course Description:

A study of printing press formats, plates and proof definitions, terminology and techniques. Emphasis is on imposition. In-depth study includes: printing and binding specifications, production guides, plate characteristics for conventional and digital printing, proofing options and characteristics. Discussion of the various printing associations; SNAP, GRACoL, SWOP and FIRST guidelines; current industry trends; calibration measurements and evaluations, using densitometers and spectrophotometers.

This course introduces fundamentals of imposition, color proofing and plate making, and places equal emphasis on techniques and quality assurance. Students learn correct procedures and gain practical, hands-on experience with a variety of specifications and industry-standard equipment. The electronic prepress workflow is described, from desktop workstation to output devices, for both conventional and digital printing. Discussions will address key technical issues, evaluation methods, printing associations, new technologies and important industry trends.

1 cl hrs, 2 lab hrs, 3 crs

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Course Overview: [Week One](#)

Course Expectations:

Attendance, homework assignments, grading, testing, classroom participation, projects and the introduction of Blackboard classroom.

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Impositions, Plates & Proofs

Course Overview: [Week One](#)

Teaching/Learning Method

Students in this class are expected to explore, construct and demonstrate knowledge of the technology, terminology, skills, tools, policies and procedures to understand the applied theory and management of impositions, plates and proofs. This includes the fundamentals of publication production, analysis, editing, storage, output and distribution technologies and processes. Students are expected to work individually to document, analyze and apply learning about key imposition, plates and proofing topics and concepts. Each student is required to demonstrate an understanding of the topics from reading resource material and completing written assignments prior to the class sessions. Students are expected to articulate their thoughts during class sessions in the form of written reports, discussions and presentations.

A written mid-term exam will cover subject matter and presentations covered in class.

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Course Overview: [Week One](#)

The Blackboard internet application is used in this course to provide access to course materials, keep current with course developments and allow students to communicate, collaborate and submit course assignments inside and outside the classroom. The Horizon Wimba collaborative function of Blackboard is used to enhance the learning environment inside the classroom beyond the ambiance of a single projector and screen. Horizon Wimba also allows students to collaborate on projects and develop more focused critical thinking regarding the course material and assignments.

Recommended Texts

- **Understanding Digital Imposition.** Hal Hinderliter.
Graphic Arts Technical Foundation Press.
- Lectures, reference and supplemental materials will also be provided on Blackboard

What is Imposition?

Imposition

From Wikipedia, the free encyclopedia

Imposition is one of the fundamental steps in the [prepress](#) printing process. It consists in the arrangement of the printed product's pages on the printer's sheet, in order to obtain faster printing, simplified [binding](#) and less waste of [paper](#).

Correct imposition minimizes printing time by maximizing the number of pages per impression, reducing cost of press time and materials. To achieve this, the printed sheet must be filled as fully as possible.

Imposition is affected by five different parameters:

Format of the product: The size of the finished page determines how many pages can be printed on a single sheet.

Number of pages of the printed product: The compositor must determine how many sheets are to be printed to create a finished book.

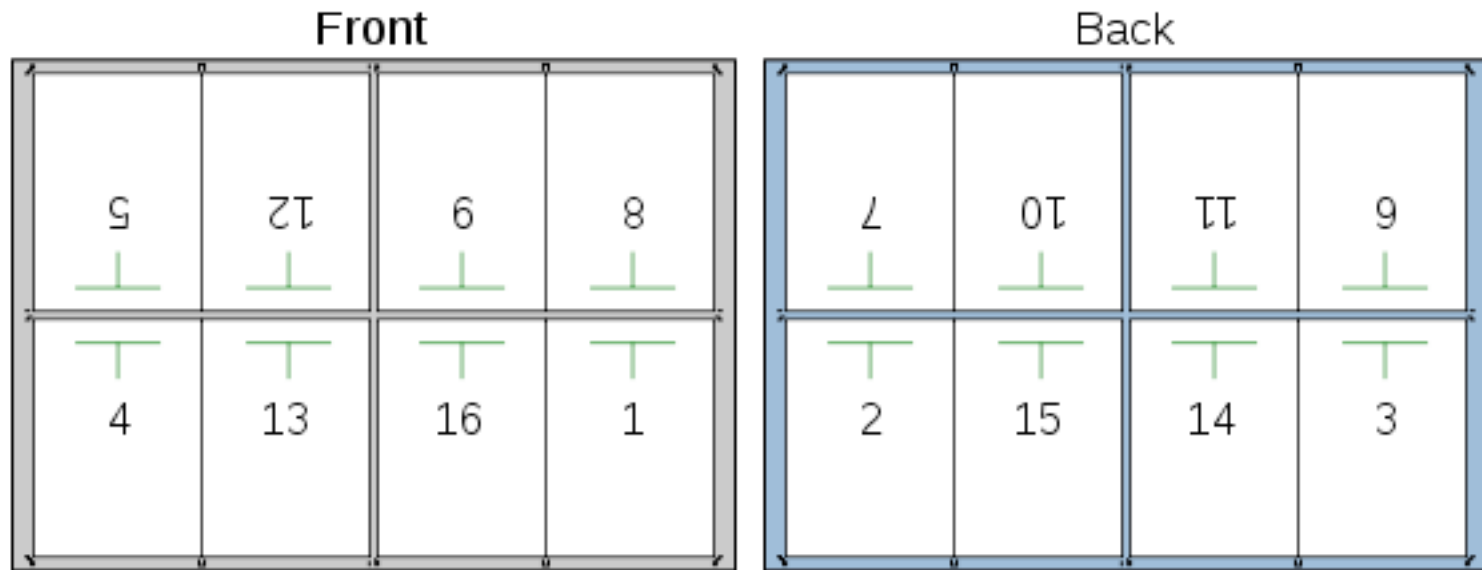
Stitching/binding method: The compositor must understand how the sheets are placed to form the signatures that compose the finished book.

Paper fiber direction: Many papers have a "grain," reflecting the alignment of the paper fibers. That these fibers must run lengthwise along the fold influences the alignment, hence the position, of the pages on the printed sheet.

Finishing and binding.

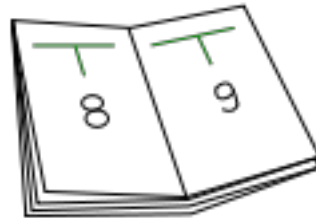
What is Imposition?

Sample 8up imposition



What is Imposition? Sample 8up imposition

In the example above, a 16-page book is prepared for printing. There are eight pages on the front of the sheet, and the corresponding eight pages on the back. After printing, the paper is folded in half vertically (page two falls against page three). Then it is folded again horizontally (page four meets page five). A third fold completes this process (page nine meets page eight). The example below shows the final result prior to binding and trimming.



What is Imposition? Non-digital techniques

Imposition has been a requirement since the earliest days of printing. When pages were set using movable type, pages were assembled in a metal frame called a chase, and locked into place using wedges called quoins.

By the late twentieth century, most typesetting was onto photographic film. These sheets were combined manually on a light table, in a process called stripping. Skilled workers would spend many hours stripping pieces of film together in the correct sequence and orientation. The term stripping was also used for other changes to a prepared page, such as a spelling correction, or a "stop press" story in a newspaper. Digital techniques rendered stripping less necessary, but what has forced increasing numbers to abandon it completely is the introduction of "platesetters", which put pages directly onto printing plates; these plates cannot be adjusted with a sharp knife. In addition, an extremely high precision would be needed for stripping of color work, as each ink color is on a separate piece of film.

What is Imposition?

Digital techniques

Manual imposition processes tend to cause bottlenecks of the whole printing production. The advent of digital imposition has not only helped a lot in making sure layout and sheet arrangement are correct with higher register precision, but it improves a lot on reducing the usual imposition errors. An entire book may be *imposed* and many complex functions applied in an instant. Binding options may be changed on the fly and impositions produced to multiple output devices at once, often with no user intervention. In turn, digital techniques help to reduce material costs, time and resolves production bottlenecks. There are several different approaches to digital imposition.

Imposition in the design application. Software packages that can be used to design single pages can often be used to design entire printed sheets, sometimes by a process as simple as copy/paste onto a larger sheet. This is still in use, especially for low volumes of work, but a popular alternative is an imposition function built in, or added in, to the design tool. This typically takes a document prepared as single pages and creates a new document with full-sheet layouts. This larger layout is then printed to film or a plate.

What is Imposition? Imposition Proof

The imposition proof is the last test that is performed before beginning the print run. This test is performed to verify, through the formation of a prototype, that the imposition was successful. Typical checks are that the pages are on the correct spot and the crossover bleeds work. It cannot be used as a check proof for images or colors or layout because it is printed on a large, low-resolution inkjet printer.

Since the inkjet printer can print on only one side of the paper, the full proof (the front and rear sides) is printed on two separate sheets. They are first cut along the crossover bleeds, checking to see if they are in the correct position. The two sheets are then attached together to form a single sheet printed on both sides, and then this sheet is folded to form a prototype of the signature.

This proof is still called blue copy, digital blue copy to prototype, or blues plotter.

What is Imposition?

Format

Number of Pages

Stitching Method

Paper Fiber or Grain

What is Imposition?

Format

Standard paper sizes like ISO A4 are widely used all over the world today.

The ISO paper size concept

In the ISO paper size system, the height-to-width ratio of all pages is the square root of two (1.4142 : 1). In other words, the width and the height of a page relate to each other like the side and the diagonal of a square. This aspect ratio is especially convenient for a paper size. If you put two such pages next to each other, or equivalently cut one parallel to its shorter side into two equal pieces, then the resulting page will have again the same width/height ratio.

The ISO paper sizes are based on the metric system. The square-root-of-two ratio does not permit both the height and width of the pages to be nicely rounded metric lengths. Therefore, the area of the pages has been defined to have round metric values. As paper is usually specified in g/m^2 , this simplifies calculation of the mass of a document if the format and number of pages are known.

What is Imposition?

Number of Pages

<http://desktoppub.about.com/od/imposition/a/imposition.htm>

http://www.devalipi.com/resources/Imposition_Studio_User_Guide.pdf

<http://www.facebook.com/pages/Imposition/107481799281459>

What is Imposition?

Stitching Method

The compositor must understand how the sheets are placed to form the signatures that compose the finished book.

Folding in Practice by STAHL

[http://www.smgraphics.co.uk/en/search/category/2/bindery-finishing/
manufacturer/428/stahl/](http://www.smgraphics.co.uk/en/search/category/2/bindery-finishing/manufacturer/428/stahl/)

A field Guide to Folding: FOLDRite

www.networkpdf.com/foldrite

What is Imposition?

Paper Fiber or Grain

Paper, like wood, has a grain. If a book is printed with the paper grain parallel to the spine it will open more easily and lay flat. Adhesive binding on paper with the wrong grain direction can produce disastrous results. Here are some simple tests to determine paper grain direction:

FOLDING TEST: When folding a small sheet of paper you will notice that it folds more easily and smoothly when the fold is parallel to the grain. If folded against the grain, the small fiber particles break and make an unsatisfactory fold.

MOISTURE TEST: If moisture is applied to one side of a sheet of paper, it immediately starts to curl in one direction. The expansion is on the cross-grain edge, the curl indicating the paper grain direction.


BENDING TEST: Thicker papers are best tested by bending them in both directions. One direction offers considerably more resistance than the other. Parallel to the grain direction the resistance is far less than against the grain.

TEARING TEST: A sheet is torn in longitudinal and transverse directions. The tear pattern will be straight when parallel to the grain and jagged across the grain.

What is Imposition?

Paper Fiber or Grain

<http://www.xerox.com/printer-supplies/paper-stock/paper-grain/enus.html>



The screenshot shows the Xerox website's 'Paper Grain & Smoothness' page. At the top, there is a navigation bar with 'Products', 'Services', 'Supplies', 'Support & Drivers', and 'Contact'. Below this, a breadcrumb trail reads '> Supplies > Paper Resource Centre'. The main heading is 'Paper Grain & Smoothness' with a sub-heading 'Don't Go Against the Grain'. A paragraph explains that understanding paper grain helps in document quality and cost savings. The page is divided into several sections, each with an icon and a brief explanation:

- More about paper:** Includes links for 'Paper: Quality tested' and 'Paper: Virtually Jam Free'.
- Hints and Tips:** Includes links for 'Conditioning and storing', 'Grain and smoothness', 'Pre-Printing: best results and precautions', and 'Helpful facts about paper, 2.356KB (pdf)'.
- Where to Buy:** Includes links for 'My Supplies' and 'Supplies Online Store', and a contact number: '1-800-822-2200'.
- What is paper grain?:** Explains that paper grain is the direction of fibers. It identifies 'grain short' (parallel to the short side) and 'grain long' (parallel to the long side). It notes that paper mills indicate grain on carton and ream labels.
- Folded Documents:** Advises to fold paper parallel to the grain direction to prevent cracking. It defines a 'crease' as a fold made by compressing paper along a straight line.
- Signature Booklets:** Advises to ensure the grain direction is parallel to the folded edge of the signature. It notes that mixing long and short grain paper can lead to uneven edges.
- Book Binding:** Advises to ensure the grain direction of every page is parallel to the binding edge. It lists five common problems: pages resist turning, wavy edges, bulky and distorted binding edge, pages flare outward, and the book snaps closed when opened.

What is Imposition?

Plates

<http://desktoppub.about.com/cs/basic/g/printingplates.htm>

Definition: Printing processes such as offset lithography use **printing plates** to transfer an image to paper or other substrates. The plates may be made of metal, plastic, rubber, paper, and other materials. The image is put on the printing plates using photomechanical, photochemical, or laser engraving processes. The image may be positive or negative.

Typically, printing plates are attached to a cylinder in the press. Ink is applied to the plate's image area and transferred directly to the paper or to an intermediary cylinder and then to the paper. In screen printing, the screen is the equivalent of the printing plate. It can be created manually or photochemically and is usually a porous fabric or stainless steel mesh stretched over a frame.

What is Imposition?

Proofs

<http://desktoppub.about.com/cs/basic/g/proofs.htm>

Definition: A general term for a variety of options for seeing what your file will look like when printed is a **proof**.

Printing proofs are used for checking that all text and graphics and colors come out as expected before going to press.

A [prepress proof](#) uses ink jets, dyes, overlays or other methods to simulate the final printed piece.

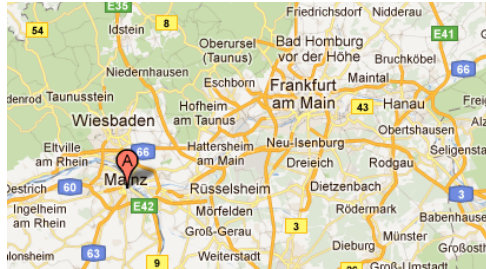
A [press proof](#) uses the printing plates and inks specified for the job.

Proofing your work comes at various stages but there are specific types of proofs created during prepress and printing that allow the designer to see if their piece will come out as intended in the final printing. Different types of printing proofs are more accurate than others but with increased accuracy comes increased costs.

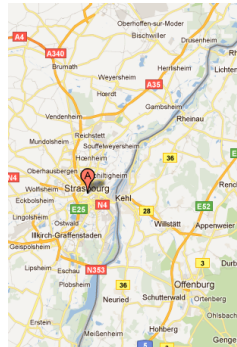
Some types of printing proofs include [blueline](#), [Velox](#), [Matchprint](#), color laser, and inkjet. Other general types of proofs are hard proofs (printed) and soft proofs (on-screen only), galley, reader, or imposition proofs (for checking general layout, order of pages, alignment, etc.) and contract proofs - the final proof (of whatever type) that the printer relies on to print the job.

Questions?

Johann Gutenberg (c. 1395 – 1468)



JOHANN GUTENBERG was born in Mainz Germany, little is known of his early life, but most historians agree that he was trained as a goldsmith or a gem cutter. Some time later in his life he became a partner in a printing firm located in Strasbourg. The 194 km drive would have taken just over 2 hours, by car, 1 day and a half walking, a long day by horse.



Johann Gutenberg (c. 1395 – 1468)



facta. sorte domini electionis numerus
 completeretur: sicut paulus consumma-
 tionem apostolicis actibus daret. quem diu
 contra flumen reuertentem dominus elegit
 set. Quod et legentibus ac requirentibus

am cohortatur. *Explet prologus
 generalis. Inquit Dialogus terris.*
Romani sunt partis ytalie.
 Inveniunt sunt a falsis
 apostolis: et sub nomine
 domini nostri ihesu christi in le-
 gem et prophetas ceant induci. Hos re-
 vocat apostolus ad veram et evangelicam fide
 sententiam et a corinthios. *Explet prologus.
 Inquit Epistola beati pauli apostoli ad romanos.*
Divus servus ihesu
 christi. vocat apostolus
 segregatus in euau-
 gelium dei. quod ante pro-
 miserat per prophetas
 suos in scripturis san-
 ctis de filio suo. qui factus est ei se-
 cundum carnem: qui predestinatus
 est filius dei in virtute secundum spiritum

Johann Gutenberg (c. 1395 – 1468)

The book known as the Gutenberg Bible was first shown in page form at a trade fair in Frankfurt in the year 1455. The complete book was shown about a year later. The book did not bear the printer's name, overtime it became know as the Gutenberg Bible.

<http://www.hrc.utexas.edu/exhibitions/permanent/gutenberg/>

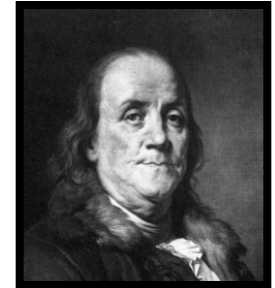
A short historical overview



Moveable Clay Type – Bi Sheng
1041-1048 A.D. - China



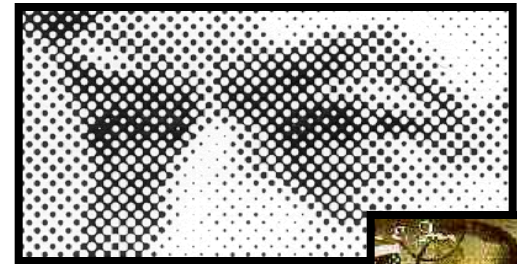
Printer, Publisher, Benjamin Franklin
1738 – Philadelphia, PA



Moveable Metal Type and Press
Johann Gutenberg
1440 – Mainz, Germany



Lithography – Alois Senefelder
1796 – Munich, Germany



Halftone Screen – Frederick Yves
1866 – New York, NY



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Blackboard Classroom

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Additional Topics:

SNAP, GRACoL, SWOP and FIRST guidelines
current industry trends
calibration measurements and evaluations
densitometers and spectrophotometers
electronic prepress workflow

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Homework:

Write about your expectations.
Review course and Blackboard site.

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