We claim:

1. An improved anatomically matched patient alignment block (100, 1000) for referencing and aligning during an arthroplasty procedure, said alignment block comprising:

a curved surface (200, 2000) adapted to match with a patient's bone anatomy said curved surface being configured with at least a release gap (203, 2030, 2040) around surrounding soft tissues or bones or both and an undercut release (205, 2050) for easy removal of said alignment block (100, 1000);

an anterior surface (400, 4000) opposite to said curved surface wherein said anterior surface comprises at least an aperture (401, 4010) to receive at least two pins (950) for pinning said alignment block (100, 1000) to a bone of a patient during an arthroplasty procedure such that said alignment block (100, 1000) is removable without removing said pins; and

at least a flat surface (300, 3000) for providing a reference surface for checking the location of a cut to be performed during the arthroplasty procedure.

2. The alignment block (100, 1000) as claimed in claim 1, wherein said aperture (401, 4010) on the anterior surface (400, 4000) is selected from a group comprising of a slot, a hole, a pair of holes and combinations thereof.

3. The alignment block (100, 1000) as claimed in claim 1, wherein said anterior surface (400, 4000) is adapted for use with surgical instruments used during arthroplasty procedure.

4. The alignment block (100, 1000) as claimed in claim 3, wherein said anterior surface (400, 4000) is flat, curved, stepped or circular.

5. The alignment block (100, 1000) as claimed in claim 1, wherein the patient's bone anatomy is determined from a three dimensional model generated from atleast one scan of the area intended for arthroplasty procedure.

6. The alignment block (100, 1000) as claimed in claim 5, wherein said scan is selected from a group comprising of Computer Tomography (CT) scan, Magnetic Resonance Imaging (MRI) scan, X-ray scan, Ultrasound and combinations thereof.

7. The alignment block (100, 1000) as claimed in claim 1, wherein information relating to said patient bone anatomy includes bone anatomy information, osteophyte information (16, 56) soft tissue information and combinations thereof.

8. The alignment block (100, 1000) as claimed in claim 1, wherein said flat surface (300, 3000) is positioned adjacent or opposite to said curved surface (200, 2000).

9. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block (100, 1000) is substantially rectangular or substantially square in shape.

10. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is configured with at least a feature to facilitate the handling and use of instrumentation to be employed during arthroplasty procedure.

11. The alignment block (100, 1000) as claimed in claim 10, wherein said feature includes one or more of extended lips (303, 3030), protrusions, stubs (407), recessions or slots (204, 404, 405, 406, 403, 4030) provided on any of the surfaces of said alignment block (100, 1000).

12. The alignment block (100, 1000) as claimed in claim 10, wherein said feature is a slot (403, 4030) that allows for the insertion of an alignment rod (10) for checking alignment during arthroplasty procedure.

13. The alignment block (100, 1000) as claimed in claim 1, wherein said arthroplasty procedure includes knee arthroplasty, hip arthroplasty, shoulder arthroplasty, wrist arthroplasty, ankle arthroplasty, spinal surgeries, and Osteotomies.

14. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is adapted for use on distal femur (2) during knee arthroplasty.

15. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is adapted for use on proximal tibia (51) during knee arthroplasty.

16. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is made from a material selected from the group comprising of a biocompatible material, a non-biocompatible material coated with a biocompatible material, a metal in combination with a biocompatible material, a surgically approved alloy, a surgically approved metal, and combinations thereof.

17. The alignment block (100, 1000) as claimed in claim 16, wherein said biocompatible material is selected from the group consisting of polyoxymethylene, high density polyethylene, polyether ether ketone, polyamides, polyurethane and combinations thereof.

18. A process for making the - alignment block (100, 1000) as claimed in claims 1 to 17, said process comprising the steps of:

obtaining atleast a scan of an area intended for performing arthroplasty procedure on a patient;

identifying bone and anatomy information of the patient from said scan;

creating a three dimensional model of said area based on the information from said scan;

plotting a surgical cut on a three dimensional modeling software;

creating a design of the shape of said alignment block on said three dimensional modeling software; and

manufacturing said alignment block (100, 1000) for use in arthroplastic surgery of the patient based on the design created on the three dimensional modeling software.

19. The process as claimed in claim 18, further comprising a step of consulting with a surgeon to obtain his instructions prior to the step of creating a design of the said alignment block.

20. The process as claimed in claim 18, wherein the said scan is selected from the group comprising of Computer Tomography (CT) scan, Magnetic Resonance Imaging (MRI) scan, X-ray scan, Ultrasound, and combinations thereof.

21. The process as claimed in claim 18, wherein said alignment blocks (100, 1000) is manufactured by conventional methods including machining, rapid prototyping and combinations thereof.

22. The process as claimed in claim 18, wherein the process performed on a small scale such as in a hospital.

23. A method of positioning an anatomically matched patient alignment block (100, 1000) as claimed in claims 1 to 17, said method comprising:

placing said alignment block (100, 1000) on the bone of a patient;

positioning a surgical instrument for making a cut on the bone of a patient; and

making the cut on the bone using the surgical instrument.

24. The method as claimed in claim 23, optionally comprising a step of driving atleast two pins (950) through said alignment block (100, 1000).

25. The method as claimed in claim 23, optionally comprising a step of removing the alignment block (100, 1000) before positioning the surgical instrument.

26. The method as claimed in claim 23, optionally comprising a step of checking the alignment of the cut to be made.

27. The method as claimed in claim 23, further comprising:

placing said alignment block (100, 1000) more than one time on the bone of the patient; and

aligning and positioning an another surgical instrument for use during arthroplasty procedure.

28. The method as claimed in claim 23, wherein the surgical instrument is a resection guide.

29. The method as claimed in claim 23, wherein the bone is a part of a knee, elbow, hip, shoulder, wrist, ankle or spine.

We claim:

1. An improved anatomically matched patient alignment block (100, 1000) for referencing and aligning during an arthroplasty procedure, said alignment block comprising:

a curved surface (200, 2000) adapted to match with a patient's bone anatomy said curved surface being configured with at least a release gap (203, 2030, 2040) around surrounding soft tissues or bones or both and an undercut release (205, 2050) for easy removal of said alignment block (100, 1000);

an anterior surface (400, 4000) opposite to said curved surface wherein said anterior surface comprises at least an aperture (401, 4010) to receive at least two pins (950) for pinning said alignment block (100, 1000) to a bone of a patient during an arthroplasty procedure such that said alignment block (100, 1000) is removable without removing said pins; and

at least a flat surface (300, 3000) for providing a reference surface for checking the location of a cut to be performed during the arthroplasty procedure.

2. The alignment block (100, 1000) as claimed in claim 1, wherein said aperture (401, 4010) on the anterior surface (400, 4000) is selected from a group comprising of a slot, a hole, a pair of holes and combinations thereof.

3. The alignment block (100, 1000) as claimed in claim 1, wherein said anterior surface (400, 4000) is adapted for use with surgical instruments used during arthroplasty procedure.

4. The alignment block (100, 1000) as claimed in claim 3, wherein said anterior surface (400, 4000) is flat, curved, stepped or circular.

5. The alignment block (100, 1000) as claimed in claim 1, wherein the patient's bone anatomy is determined from a three dimensional model generated from atleast one scan of the area intended for arthroplasty procedure.

6. The alignment block (100, 1000) as claimed in claim 5, wherein said scan is selected from a group comprising of Computer Tomography (CT) scan, Magnetic Resonance Imaging (MRI) scan, X-ray scan, Ultrasound and combinations thereof.

7. The alignment block (100, 1000) as claimed in claim 1, wherein information relating to said patient bone anatomy includes bone anatomy information, osteophyte information (16, 56), soft tissue information and combinations thereof.

8. The alignment block (100, 1000) as claimed in claim 1, wherein said flat surface (300, 3000) is positioned adjacent or opposite to said curved surface (200, 2000).

9. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block (100, 1000) is substantially rectangular or substantially square in shape.

10. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is configured with at least a feature to facilitate the handling and use of instrumentation to be employed during arthroplasty procedure.

11. The alignment block (100, 1000) as claimed in claim 10, wherein said feature includes one or more of extended lips (303, 3030), protrusions, stubs (407), recessions or slots (204, 404, 405, 406, 403, 4030-) provided on any of the surfaces of said alignment block (100, 1000).

12. The alignment block (100, 1000) as claimed in claim 10, wherein said feature is a slot (403, 4030) that allows for the insertion of an alignment rod (10) for checking alignment during arthroplasty procedure.

13. The alignment block (100, 1000) as claimed in claim 1, wherein said arthroplasty procedure includes knee arthroplasty, hip arthroplasty, shoulder arthroplasty, wrist arthroplasty, ankle arthroplasty, spinal surgeries, and Osteotomies.

14. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is adapted for use on distal femur (2) during knee arthroplasty.

15. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is adapted for use on proximal tibia (51) during knee arthroplasty.

16. The alignment block (100, 1000) as claimed in claim 1, wherein said alignment block is made from a material selected from the group comprising of a biocompatible material, a non-biocompatible material coated with a biocompatible material, a metal in combination with a biocompatible material, a surgically approved alloy, a surgically approved metal, and combinations thereof.

17. The alignment block (100, 1000) as claimed in claim 16, wherein said biocompatible material is selected from the group consisting of polyoxymethylene, high density polyethylene, polyether ether ketone, polyamides, polyurethane and combinations thereof.

18. A process for making the - alignment block (100, 1000) as claimed in claims 1 to 17, said process comprising the steps of:

obtaining atleast a scan of an area intended for performing arthroplasty procedure on a patient;

identifying bone and anatomy information of the patient from said scan;

creating a three dimensional model of said area based on the information from said scan;

plotting a surgical cut on a three dimensional modeling software;

creating a design of the shape of said alignment block on said three dimensional modeling software; and

manufacturing said alignment block (100, 1000) for use in arthroplastic surgery of the patient based on the design created on the three dimensional modeling software.

19. The process as claimed in claim 18, further comprising a step of consulting with a surgeon to obtain his instructions prior to the step of creating a design of the said alignment block.

20. The process as claimed in claim 18, wherein the said scan is selected from the group comprising of Computer Tomography (CT) scan, Magnetic Resonance Imaging (MRI) scan, X-ray scan, Ultrasound, and combinations thereof.

21. The process as claimed in claim 18, wherein said alignment blocks (100, 1000) is manufactured by conventional methods including machining, rapid prototyping and combinations thereof.

22. The process as claimed in claim 18, wherein the process performed on a small scale such as in a hospital.

23. The alignment block as claimed in claim 3, wherein said surgical instrument is a resection guide.

24. The alignment block as claimed in claim 1, wherein said bone is a part of a knee, elbow, hip, shoulder, wrist, ankle or spine.