

Spoken Tutorial

Introduction to OpenFOAM

Talk to a Teacher

<http://www.sakshat.ac.in>

National Mission on Education through ICT

<http://spoken-tutorial.org>

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Talk to a Teacher

About OpenFOAM

Open Source Field Operation and Manipulation:



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Open Source Field Operation and Manipulation:

- is an Open Source Computational Fluid Dynamics Software



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About OpenFOAM

CFD tool box:



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CFD tool box:

- written in C++ working on Linux operating systems



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OpenFOAM:

- has an Object Oriented Programming Interface



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OpenFOAM Capabilities

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OpenFOAM Capabilities

OpenFOAM:

- is a *Finite Volume* based CFD software



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- is a *Finite Volume* based **CFD** software



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OpenFOAM Capabilities

OpenFOAM:

- is a *Finite Volume* based **CFD software**
- using both structured and unstructured grid



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- has a mesh generation tool called as blockMesh



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 - It is useful for structured meshing ,easy and smaller grids



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- It also has an Advanced Meshing tool called as : snappyHexMesh



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Importing Mesh Files

- We can import mesh files into openFOAM using third party softwares like



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- useful for large and complex geometries



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- arbitrary polyhedral mesh



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Boundary Conditions

- **Various default boundary conditions which are available**



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- **Users can also modify the boundary conditions according to their case**



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Talk to a Teacher

- Incompressible flows (icoFoam)



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- **Incompressible flows (icoFoam)**



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Solvers

- **Incompressible flows (icoFoam)**
- **Compressible flows (sonicFoam)**



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- Users can create their own solvers



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- Users can create their own solvers
- Modify the existing solvers



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Parallel Processing

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- **We can use 'n' number of processors**



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Post Processing

- OpenFOAM results can be visualized using Paraview which is an open source software



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Equivalent to commercial software

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Modelling in OpenFOAM

Solver syntax in OpenFOAM:



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Modelling in OpenFOAM

Solver syntax in OpenFOAM:

- is similar to that used in writing a Partial Differential Equation



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Talk to a Teacher

Forum to answer questions

- Do you have questions on THIS Spoken Tutorial?



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- Choose the minute and second where you have the question.



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- Explain your question briefly.



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- Someone from the **FOSSEE** team will answer them. Please visit



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Forum to answer questions

- Questions not related to the Spoken Tutorial?
- Do you have general / technical questions on the Software?
- Please visit the FOSSEE Forum
<http://forums.fossee.in/>
- Choose the Software and post your question.



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Case Study Project

- The FOSSEE team coordinates solving past, current or new CFD projects using OpenFOAM
- We give honorarium and certificate to those who do this

For more details, please visit this site:

<http://cfd.fossee.in/>



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Acknowledgements

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About the Contributor

- **Rahul Joshi - IIT BOMBAY signing off.**
- **Thanks for joining.**



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