



यांत्रिकी अभियान्त्रिक विभाग

DEPARTMENT OF MECHANICAL ENGINEERING

राष्ट्रीय प्रौद्योगिकी संस्थान कर्नाटक, सुरत्कल

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

Ph.D/M.Tech (Research) Selections 2020-21

Syllabus for the online test

Ph.D Selection

Engineering Mathematics: Linear Algebra, Calculus, Differential equations, Complex variables, Probability and Statistics, Numerical Methods.

Applied Mechanics and Design: Engineering Mechanics, Mechanics of Materials. Theory of Machines, Vibrations, Concepts of Mechanical Design

Fluid Mechanics and Thermal Sciences: Basic Fluid Mechanics, Thermodynamic systems and processes Heat Transfer Applications: Power Engineering: Air and gas compressors, I.C. Engines, Refrigeration and air-conditioning Turbo machinery, Renewable energy.

Materials and Manufacturing: Engineering Materials: Casting, Forming and Joining Processes: Machining and Machine Tool Operations: Metrology and Inspection: Computer Integrated Manufacturing:

Mechatronics and Industrial Automation: Mechatronics system, Instrumentation, Sensors and Actuators, Signal systems and control, Robotics, Modeling of systems.

References:

1. J. Wickert, *An introduction to Mechanical Engineering*, Cengage Learning India Pvt. Ltd, 3rd edn. 2015.
2. Gopala Krishna K.R., *Elements of Mechanical Engineering*, Subhas Store, 2015.
3. Gupta, P.N., and Poonia, M.P., *Elements of Mechanical Engineering*. 4th Edition, Standard Publications Ltd, 2009.
4. Yunus Cengel & Robert Turner, *Fundamentals of Thermal-Fluid Sciences*, McGraw-Hill, 4th Indian edn. 2017.
5. Rao P. N, *Manufacturing Technology*, Volume I and II, 5th Edn., McGraw-Hill, 2018.
6. Rajendra Karwa, *A Text book of Machine Design*, Laxmi Publications, 3rd edn., 2018
7. Godfrey Onwubolu, *Mechatronics: Principles and Applications*, Elsevier India, 1st edn., 2006.
8. Jiju Antony, *Design of Experiments for Engineers and Scientists*, Elsevier, 2nd Edn., 2018.
9. Kalpakjian S & Schmid S.R., *Manufacturing Engineering and Technology*. 7th edn., Pearson Education, 2018.
10. Ervin Kreyszig, *Advanced Engineering Mathematics*, 10th edn., John Wiley and Sons, 2015.
11. Steven Chapra and R. Canale, *Numerical methods for Engineers*, McGraw-Hill, 6th edn, 2010.

All shortlisted candidates must undergo the online test.

Mode of written exam online

Date and time 09-09-2020 at 9.00AM to 9.30AM

M.Tech (Research) selection

- Shortlisted candidates who are GATE qualified only interview on 09-09-2020 from 9.30AM.
- Shortlisted candidates who are GATE not qualified online written test with above syllabus on 09-09-2020 at 9.00AM to 9.30AM and followed by Interview on 09-09-2020



Head of the Department
Dr. Shrikantha S Rao

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