Karnatak Law Society's
VishwanathraoDeshpande Institute of Technology, Haliyal
(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)
(Recognised Under Section 2(f) by UGC, New Delhi)
UdyogVidya Nagar, Haliyal – 581329, Dist: Uttar Kannada
Phone: 08284-220861, 220334, 221409, Fax: 08284-220813
Web: www.klsvdit.edu.in Email: principal@klsvdit.edu.in / hodmech@klsvdit.edu.in

Department of Mechanical Engineering

Subject:	**Casting Technology**	**Sem:**	**3**
Course Owners	**Gururaj Hatti, Vinaykumar B ,Rashmi M**	**Teaching hours**	**30**

Module: 1	**Foundry Metallurgy:** Oxidation of liquid metals, gas dissolution in liquid metals, methods of degassing, fluidity, factors affecting fluidity, fluidity tests, hot tearing, shrinkage of liquid metals.	**6 Hours**
Module: 2	**Ferrous Foundry:** Melting procedures, casting characteristics, production, specification, and properties of some typical steels, grey cast iron, malleable iron, and spheroidal graphite cast iron castings	**7 Hours**
Module: 3	**Testing and Inspection in Foundry:** Identification causes and remedies of casting defects. Inspection of casting (visual, dimensional inspection), Non-destructive tests to identify casting defects	**7 Hours**
Module: 4	**Modernization And Mechanization Of Foundry:** Need for modernization, and mechanization, moulding and core making, melting, pouring, shake out equipment and fettling, dust and fume control, material handling equipments for sand moulds and cores, molten metal and castings, reclamation of sands. Pollution control – norms, and agencies.	**7 Hours**
Module: 5	**Expert Talk**	**3 Hours**

Course outcome

Analyse Foundry metallurgy and the concept of solidification of metals.

Compare and discuss different melting and molding techniques for a particular alloy.

Identify and apply Mechanization and Modernization of foundry

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Department of Mechanical Engineering

Subject:	Fundamentals of Automobile Design	Sem:	5
Course Owners	Rajat Acharya, Santosh Savanur, Sanjay Dambal	Teaching hours	30

Module: 1	**Fundamentals of Automobile Design:** Introduction to Design, Meaning of Design, Characteristics of good design, Industrial Design and its importance, Typical product life cycle, Automotive Design processes, Product conceptualization process, CAS surfaces, Class A surface and its importance, Requirement of class A surfaces.	6 Hours
Module: 2	**CAE Considerations:** What is Computer Aided Engineering (CAE), Finite Element Analysis (FEA), NVH, Dura, Crash, Occupant Safety, Difference between implicit and explicit solvers, Pre-post and Solvers and types of solvers	6 Hours
Module: 3	**Formability:** Simultaneous Engineering. feasibility study, Sheet metal processes, Types of draw dies, forming simulations, Various Material properties, Forming Limit Curve (FLD)	6 Hours
Module: 4	**Die Design:** Sheet Metal parts and their operation, Presses, Various elements used in die design, Process of die design, Functions of the elements required for each die	6 Hours
Module: 5	**Fixture Design**: Correlation of types of joints for Fixture Design, joining processes and their Applications Overview, Need Of Fixtures & Type Of Fixtures, Use of product GD&T in the Fixture design.	6 Hours

Course Outcomes:

1. **Students able to understand the design processes and apply the same while solving problems.**
2. **Student able to apply modern tools to solve the problems.**
3. **Various stages in sheet metal part manufacturing, Identify auto body and its parts.**
4. **Elements used in the die and its functions**
5. **Basics of Fixture design, the need, its process, types of fixtures.**

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DEPARTMENT OF MECHANICAL ENGINEERING

Subject:	Computational Fluid Dynamics	Sem:	7
Course Owners	Shankar B, RJ Talapati, Naveen CS	Teaching hours	30

SlNo	Syllabus	Hours
1	**Theory session:** Design Validation, Introduction to CFD, Governing equations, Turbulence, Discretization, Numerical scheme, Boundary conditions, Convergence, Grid independent study. Case studies.	10 Hours
2	**Lab session:(Ansys fluent)** **Problems on Fluid flow characteristics:** 1. Flow through pipe. 2. Flow over a flat surface. 3. Flow over a sphere.	10 Hours
3	**Lab session:(Ansys fluent)** **Problems on heat transfer characteristics:** 1. Jet impinging on flat surface. 2. Jet impinging on convex surface. 3. Jet impinging on concave surface.	10 Hours

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