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

Department Of Mechanical Engineering

Addon Course

INTELLECTUAL PROPERTY RIGHTS (IPR)

Semester: IV **Hours:30**

2021-2022 Even Sem

Learning Objectives:

- To introduce fundamental aspects of Intellectual property Rights to students
- To disseminate knowledge on patents, the patent regime in India and abroad, and registration aspects
- To disseminate knowledge on copyrights and their related rights and registration aspects
- To disseminate knowledge on trademarks and registration aspects
- To disseminate knowledge on Design, Geographical Indication (GI), Plant Variety and Layout Design Protection and their registration aspects

Module-1

Overview of Intellectual Property

Introduction and the need for intellectual property right (IPR) - Kinds of Intellectual Property Rights: Patent, Copyright, Trade Mark, Design, Geographical Indication, Plant Varieties, and Layout Design – Genetic Resources and Traditional Knowledge – Trade Secret - IPR in India: Genesis and development – IPR in abroad - Major International Instruments concerning Intellectual Property Rights: Paris Convention, 1883, the Berne Convention, 1886, the Universal Copyright Convention, 1952, the WIPO Convention 1967, the Patent Co-operation Treaty, 1970, the TRIPS Agreement, 1994. India`s New National IP Policy, 2016 – Govt. of India step towards promoting IPR – Govt. Schemes in IPR – Career Opportunities in IP - IPR in current scenario with case studies

6-Hours

Module-2

Patents

Patents - Elements of Patentability: Novelty, Non-Obviousness (Inventive Steps), Industrial Application - Non - Patentable Subject Matter - Registration Procedure, Rights and Duties of Patentee, Assignment and license, Restoration of lapsed Patents, Surrender and Revocation of Patents, Infringement, Remedies & Penalties - Patent office and Appellate Board.

6-Hours

Module-3

Copyrights

Nature of Copyright - Subject matter of copyright: original literary, dramatic, musical, artistic works; cinematograph films and sound recordings - Registration Procedure, Term of protection, Ownership of a copyright, Assignment, and license of copyright - Infringement, Remedies & Penalties – Related Rights - Distinction between related rights and copyrights.

6-Hours

Module-4

Trademarks

Concept of Trademarks - Different kinds of marks (brand names, logos, signatures, symbols, well-known marks, certification marks, and service marks) - Non-Registrable Trademarks - Registration of Trademarks - Rights of holder and assignment and licensing of marks - Infringement, Remedies & Penalties - Trademarks registry and appellate board.

6-Hours

Module-5

Other forms of IP

Design

Design: meaning and concept of the novel and original - Procedure for registration, the effect of registration, and term of protection.

Geographical Indication (GI)

Geographical indication: meaning, and the difference between GI and trademarks - Procedure for registration, the effect of registration, and term of protection.

Plant Variety Protection

Plant variety protection: meaning and benefit-sharing and farmers' rights – Procedure for registration, the effect of registration, and term of protection.

Layout Design Protection

Layout Design protection: meaning – Procedure for registration, the effect of registration, and term of protection.

6-Hours

Useful Websites:

1. Cell for IPR Promotion and Management (http://cipam.gov.in/)
2. World Intellectual Property Organization (https://www.wipo.int/about-ip/en/)
3. Office of the Controller General of Patents, Designs & Trademarks (http://www.ipindia.nic.in/)

NPTEL Links:

1. Intellectual Property - https://nptel.ac.in/courses/109106137
2. Intellectual Property Rights and Competition Law - https://nptel.ac.in/courses/110105139
3. Managing Intellectual Property in Universities - https://nptel.ac.in/courses/109106148
4. Introduction on Intellectual Property to Engineers and Technologists - https://nptel.ac.in/courses/109105112

Add on course syllabus

Sub: CNC Programming & Machining

No.	Syllabus details	No. of hours		BTL
		Theory	Lab	
	Module 1: Introduction, components of CNC, CNC turning centre, CNC machining centre, constructional features of machines, advantages and applications	2	1	L2, L3
	Module 2: Basics of CNC programming, absolute and incremental programming, G-codes, M-codes, Modal & non modal codes, tool compensation, geometry offset, programming for facing & plain turning, Programming using canned cycles – rough turning cycle, pattern repeating cycle, facing cycle, finishing cycle, multi pass thread cutting cycle, boring etc.	2	10	L3, L4
	Module 3: CNC milling programming, cutter radius compensation, tool length compensation, spot drilling cycle, deep hole peck drilling cycle, profile milling	2	2 (simulation or industrial visit)	L3
	Module 4: Gauging & inspection practices, Taylor's principle of gauge design, standard measuring instruments, attribute & variable gauges	2	1	L2, L3
	Module 5: Maintenance of CNC machines, Types of maintenance, MTBF, MTTR, spare parts	1	1	L2, L3
	Module 6: Recent advances in CNC, Cutting tools used on CNC machines, inserts & tool holders, ISO designation, selection	2 (Industry resource person)		L2
	Industrial visit	4		L2, L3
	Total hours	30		

Reference books:

1. CAD/CAM principle & applications, P. N. Rao, 2nd edition, Tata McGraw Hill publishers
2. CNC Fundamental & Programming, P. M. Agrawal, V. J. Patel, 2nd edition, Charotkar publishers
3. CNC Programming handbook, Peter Smid, 2nd edition, Industrial Press, Inc.
4. Fanuc series Oi-TC Operation and Maintenance manual

Karnataka Law Society's
Vishwanathrao Deshpande Institute of Technology, Haliyal
(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)
(Recognised Under Section 2(f) by UGC, New Delhi)
Udyog Vidya 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

WRC
Department of Mechanical Engineering
Add on course syllabus
2021-22 (Even Semester)

Semester: IV (A&B)
Sub: Welding & Inspection

About the Add on course: This course aims at providing basic information about various welding processes, welding metallurgy and inspection techniques. The theoretical lecture covered will be supplemented with practical demonstration at WRC in Mechanical Engineering Dept. This course will be useful to the person who desire to work in fabrication industries including Aerospace, Automobile, Power plant and Ship building.

Course contents:

- Arc Welding Power sources
- SMAW Process - Equipment, Techniques & Electrodes Classification
- SAW Process - Principle, Equipment, Techniques, Consumable and Applications
- GMAW and FCAW Processes - Principle, Equipment, Techniques, Consumables and Applications
- GTAW Process - Principle, Equipment, Techniques, Consumables and Applications
- Welding metallurgy - Weldability of steels
- Heat treatment of weldments
- Weld Joint Design & Welding symbols
- Welding procedure specification as per ASME Sec IX
- Mechanical and Metallurgical testing of welds
- Weld discontinuities, types, causes and remedies
- Visual inspection
- Penetrant test & Magnetic Particle test
- Radiographic Testing Principles & Techniques
- Ultrasonic Testing Principles & Techniques
- Demonstration of welding processes, Destructive & Non-Destructive Testing methods.

Sl. No.	Syllabus details	No. of hours		BTL
		Theory	Lab	
1	Arc Welding Power sources	2		L1,L2
2	SMAW Process - Equipment, Techniques & Electrodes Classification	2		L1,L2
3	SAW Process - Principle, Equipment, Techniques, Consumable and Applications	2		L1,L2

4	GMAWandFCAW Processes- Principle, Equipment,Techniques,Consumables,&Applications	1	1	L1,L2
5	GTAW Process - Principle, Equipment, Techniques, Consumables and Applications	2		L1, L2
6	Welding metallurgy - Weldability of steels	2		L2,L3
7	Heat treatment of weldments	1	1	L2, L3
8	Weld Joint Design & Welding symbols	2		L3,L4
9	Welding procedure specification as per ASME Sec IX	2		L3,L4
10	Mechanical and Metallurgical testing of welds	2		L3,L4
11	Weld discontinuities, types, causes and remedies	2		L3,L4
12	Visual inspection Penetrant test & Magnetic Particle test	1	2	L3,L4
13	Radiographic Testing Principles & Techniques	2		L3,L4
14	Ultrasonic Testing Principles & Techniques	2		L3,L4
15	Demonstration of welding processes, Destructive & Non-Destructive Testing methods	2		L3,L4
		27	4	

eference books:

1. Welding Engineering and Technology – R.S. Parmar, M/s. Khanna Publishers, 2-B Nath Market, Sai Sarak, Delhi – 110 006.
2. A Textbook of Welding Technology – O. P. Khanna.
3. Welding Handbook, American Welding Society, Section-II: Gas Arc and Resistance.
4. The Science and Practice of Welding, Vol-1: Welding Science and Technology.
5. The Science and Practice of Welding, Vol-2 : The Practice of Welding : A.C. Davies, Cambridge University Press (Website : www.cambridge.org).
6. Messler R.W., Principles of Welding, John Wiley & Sons, 1999.
7. Welding Technology for Engineers, Eds. Baldev Raj, V. Shankar, A.K. Bhaduri, Narosa Publishing House, Third Reprint – 2009.
8. Welding Handbook, American Welding Society, Part-I: Fundamentals of Welding.
9. Metallurgy of Welding – J.L. Lancaster, Woodhead Publishing Ltd., (Website: www.woodheadpublishing.com).
10. Metals and their Weldability, Welding Handbook, Part-4, American Welding Society.
11. Kou S. Welding Metallurgy, Second Ed., John Wiky & Sons Inc., 2003.

Karnatak Law Society's
Vishwanathrao Deshpande Institute of Technology, Haliyal
(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)
(Recognised Under Section 2(f) by UGC, New Delhi)
Udyog Vidya 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 : Advanced Automobile Design
SEMESTER : 6

Sl. No.	Syllabus Details	No. of Hours		BTL
		Theory	Lab	
1.	Module 1:Introduction of Body-In-White Requirement Specification in the Pre-Program Stage, Product life cycle and important gateways for BIW, Identification of commodities for BIW, Design concepts and considerations in BIW	08		1,2
2.	Module 2:Design Verification - CAE Methods and Gateway Supports for BIW Understanding design verification, Test Methods & applications, CAE role in different phases of product development, Structural analysis & Fatigue life Crash Analysis	06		4
3	Module 3:Design Requirements & Trim Materials Vehicle Regulations, Automotive Safety Design for Environment, Material Classifications, Selection criteria, Plastic Additives	06		4
4	Module 4:Manufacturing & Testing Manufacturing Process, Test Validation & Assessment, Assembly Sequence	06		4
5	Module 5:Future Trends & Case Studies Future Materials, Recycling, Light Weight Materials Case Studies	02	02 (Ansys Lab)	4

Reference Books:

1. Dimensional Control Fundamentals, Curt Larson, Right Tech.INC
2. Geometric Dimensioning and Tolerancing for Mechanical Design, Gene R Cogorno,3E, TMC

Course Syllabus Framed by:

1.Prof. G H Joshi
2.Prof. G R Sattigeri
3. Prof Anant Joshi

Industry Expert :

4.Shri Basavaraj Haragabal
Tata Motors

Add on course syllabus

Sub: CNC Programming & Machining

Sl. No.	Syllabus details	No. of hours		BTL
		Theory	Lab	
1	Module 1: Introduction, components of CNC, CNC turning centre, CNC machining centre, constructional features of machines, advantages and applications	2	1	L2, L3
2	Module 2: Basics of CNC programming, absolute and incremental programming, G-codes, M-codes, Modal & non modal codes, tool compensation, geometry offset, programming for facing & plain turning, Programming using canned cycles – rough turning cycle, pattern repeating cycle, facing cycle, finishing cycle, multi pass thread cutting cycle, boring etc.	2	10	L3, L4
3	Module 3: CNC milling programming, cutter radius compensation, tool length compensation, spot drilling cycle, deep hole peck drilling cycle, profile milling	2	2 (simulation or industrial visit)	L3
4	Module 4: Gauging & inspection practices, Taylor's principle of gauge design, standard measuring instruments, attribute & variable gauges	2	1	L2, L3
5	Module 5: Maintenance of CNC machines, Types of maintenance, MTBF, MTTR, spare parts	1	1	L2, L3
6	Module 6: Recent advances in CNC, Cutting tools used on CNC machines, inserts & tool holders, ISO designation, selection	2 (Industry resource person)		L2
7	Industrial visit	4		L2, L3
	Total hours	30		

Reference books:

1. CAD/CAM principle & applications, P. N. Rao, 2nd edition, Tata McGraw Hill publishers
2. CNC Fundamental & Programming, P. M. Agrawal, V. J. Patel, 2nd edition, Charotkar publishers
3. CNC Programming handbook, Peter Smid, 2nd edition, Industrial Press, Inc.
4. Fanuc series Oi-TC Operation and Maintenance manual

Mechanical Engineering
KLS Vishwanathrao Deshpande
Institute of Technology
Haliyal-581329

Karnatak Law Society's
Vishwanathrao Deshpande Institute of Technology, Haliyal
(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)
(Recognised Under Section 2(f) by UGC, New Delhi)
Udyog Vidya 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

7th B ADD on
S. Badiger

Add on course- Syllabus

Sem: VII

Sub. Name: REFRIGERATION AND AIR CONDITIONING

Name of the faculty: Prof. Shankar Badiger and Prof. Naveen CS

REFRIGERATION AND AIR CONDITIONING			
Course Code	Add on course	IA Marks	30
Teaching Hours/Week	2	Exam Hours	2

Module-1

Refrigeration cycles – analysis: Heat engine, heat pump, and refrigerating machine. Reverse Carnot cycle-simple problems. Unit of refrigeration, COP. Development of Vapor Compression Refrigeration cycle. Conditions for high COP. Vapour compression system with multiple evaporator and compressor. Numerical problems.

(10 hrs)

Module-2

Air refrigeration systems: Definitions, Advantages and dis-advantages of air refrigeration system, Necessary for cooling the aeroplane, Types of air refrigeration systems used in the acroplanes. Numerical problems.
Main system components: Compressor- Types, Types of Evaporators & Condensers and their functional aspects, Expansion Devices and their Behavior with fluctuating load. Refrigeration tools.

(10 hrs)

Module-3

Load estimation and air conditioning control:
Solar Radiation-Heat Gain through Glasses, Heat transfer through roofs and walls, Total Cooling Load Estimation. Controls of Temperature, Humidity and Airflow. Numerical problems.

(10 hrs)

5/12/22
Shankar Badiger
Faculty

HOD

SYLLABUS

Module1 : Styling (06 Hrs)

Typical Product Life Cycle, Product Conceptualization process,Case Study, CAS Surfaces or Digital Clay Models, Class A Surfaces, Role of Class A Surface Engineer,Requirements for a Surface to fulfil "Class A Surface" Standards,Process for Bonnet Class A Surface Creation

Module2 : Design and Development (06Hrs)

Function of a bonnet,Inputs for the bonnet,Study of Class A Surfaces,Develop Hood Package Layout,Develop Typical Sections,Block Surfaces in 3D, Dynamic Clearance Surfaces in 3D,CAE (Durability, crash),Panel Detail Design, Body Assembly Process, Design Updating and Detailing Prototypes,Design Updating and Production Release

Module 3: Computer Aided Engineering (06Hrs)

Introduction to CAD, CAM & CAE, What is FEA,Durability, NVH, Crash,Vehicle Crashworthiness,Energy Management,Biomechanics,Head Impact Analysis on Hood Importance of Failure Criteria,Von– Mises Stress

Module 4 : Formability (06Hrs)

What is Sheet metal design and manufacturing cycle,simultaneous Engineering (SE) ,Auto body and its parts,Important constituents of an automobile,Sheet metal processes,Types of draw dies,Draw Model development,Considerations,Forming simulations,Material properties,Forming Limit Curve (FLD),Pre processing, Post Processing

Module 5: Die Design and Fixture Design (06Hrs)

Sheet metal parts and their operation like Cutting, Non-cutting etc.,Presses,Various elements used in die design,Different types of dies, Animations describing the working of dies,Define welding,Spot/Arc welding Body Coordinates,the 3-2-1 principle, need for Fixture,Design Consideration, use product GD&T in the Fixture design,List the Fixture Elements.

Reference Books:

1. Dimensional Control Fundamentals, Curt Larson, Right Tech.INC
2. Geometric Dimensioning and Tolerancing for Mechanical Design, Gene R Cogorno,3E, TMC

Course Syllabus Framed by:

1.Prof. G H Joshi
2.Prof. G R Sattigeri
3. Prof Anant Joshi

Industry Expert :

4.Shri Basavaraj Haragabal
Tata Motors