

**204191****EMPLOYABILITY SKILL DEVELOPMENT****Credits:Th – 02, Pr -01****Subject Code:****Teaching Scheme****Theory / Week : 2 Hrs****Practical /Week : 2Hrs.****Examination Scheme****Term Work: 50 Marks****Course Objectives:**

1. To develop analytical abilities
2. To develop communication skills
3. To introduce the students to skills necessary for getting, keeping and being successful in a profession.
4. To expose the students to leadership and team-building skills.

**Course Outcomes:** On completion of the course, student will be able to:

1. Have skills and preparedness for aptitude tests.
2. Be equipped with essential communication skills (writing, verbal and non-verbal)
3. Master the presentation skill and be ready for facing interviews.
4. Build team and lead it for problem solving.

**Unit I :Soft Skills & Communication basics****(4Hrs)**

Soft skills Vs hard skills, Skills to master, Interdisciplinary relevance, Global and national perspectives on soft skills. Resume, Curriculum vitae, How to develop an impressive resume, Different formats of resume – Chronological, Functional, Hybrid, Job application or cover letter, Professional presentation- planning, preparing and delivering presentation, Technical writing

**Unit II: Arithmetic and Mathematical Reasoning****(4 Hours)**

Aspects of intelligence, Bloom taxonomy, multiple intelligence theory, Number sequence test, mental arithmetic (square and square root, LCM and HCF, speed calculation, remainder theorem)

**Unit III: Analytical Reasoning and Quantitative Ability****(4 Hours)**

Matching, Selection, Arrangement, Verifications (Exercises on each of these types). Verbal aptitude (Synonym, Antonym, Analogy)

**Unit IV: Grammar and Comprehension****(4 Hours)**

English sentences and phrases, Analysis of complex sentences, Transformation of sentences, Paragraph writing, Story writing, Reproduction of a story, Letter writing, précis writing, Paraphrasing and e-mail writing.

**Unit V: Skills for interviews****(4Hours)**

Interviews- types of interviews, preparatory steps for job interviews, interview skill tips, Group discussion- importance of group discussion, types of group discussion, difference between group discussion, panel discussion and debate, personality traits evaluated in group discussions, tips for successful participation in group discussion, Listening skills- virtues of listening, fundamentals of good listening, Non-verbal communication-body movement, physical appearance, verbal sounds, closeness, time.

**Unit VI: Problem Solving Techniques****(4 Hours)**

Problem solving model: 1. Define the problem, 2. Gather information, 3. Identify various solution, 4. Evaluate alternatives, 5. Take actions, 6. Evaluate the actions.

Problem solving skills: 1. Communicate. 2. Brain storming, 3. Learn from mistakes.

**Text Books:**

1. R. Gajendra Singh Chauhan, Sangeeta Sharma, "Soft Skills- An integrated approach to maximize personality", ISBN: 987-81-265-5639-7, First Edition 2016, Wiley.
2. Wren and Martin, "English grammar and Composition", S. Chand publications.
3. R. S. Aggarwal, "A modern approach to verbal reasoning", S. Chand publications.

**Reference Books:**

1. Philip Carter, "The Complete Book Of Intelligence Test", John Willey & Sons Ltd.
2. Philip Carter, Ken Russell, "Succeed at IQ test", Kogan Page
3. Eugene Ehrlich, Daniel Murphy, "Schaum's Outline of English Grammar", McGraw Hills.
4. David F. Beer, David A. McMurrey, "A Guide to Writing as an Engineer", ISBN : 978-1-118-30027-5 4th Edition, 2014, Wiley.

**List of Practical:**

1. Every student should collect five questions of each type
  - a. Number sequence
  - b. Mental arithmetic
  - c. Square, square roots
  - d. LCM, HCF
  - e. Speed calculations

**Note:** Teacher should distribute the question set randomly amongst the students.

2. Write up on
  - a. Blooms taxonomy
  - b. Multiple intelligence theory
  - c. Every student should identify his/her strength and weaknesses
  - d. Action plan to improve the weaknesses
3. Every student should collect five questions of each type
  - a. Matching
  - b. Selection
  - c. Arrangements
  - d. Verifications

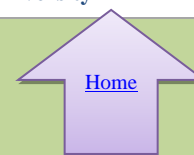
**Note:** Teacher should distribute the question set randomly amongst the students.

4. Every student should collect five questions of each type
  - a. Verbal aptitude
  - b. Synonym
  - c. Antonym
  - d. Analogy

**Note:** Teacher should distribute the question set randomly amongst the students.

5. Solve exercises from book (Wren and Martin, "English grammar and Composition") based on
  - a. English sentences and phrases
  - b. Paragraph writing
  - c. Story writing
  - d. Letter writing
6. Formulate suitable assignment to solve a real problem using problem solving techniques
7. Practice tests (aptitude, analytical abilities, logical reasoning)
8. Extempore, group discussions and debate.
9. Technical report writing and Seminar Presentation.
10. Mock interviews.

**Savitribai Phule Pune University**  
**Third Year of Engineering (2019 Course)**  
**Audit Course 5**  
**310250(B): Professional Ethics and Etiquettes**



**Prerequisites:** Business Communication Skill

**Course Objectives:**

- To learn importance of ethics and the rules of good behavior for today's most common social and business situations.
- To acquire basic knowledge of ethics to make informed ethical decisions when confronted with problems in the working environment.
- To develop an understanding towards business etiquettes and the proper etiquette practices for different business scenarios.
- To learn the etiquette requirements for meetings, entertaining, telephone, email and Internet business interaction scenario.

**Course Outcomes:**

On completion of the course, learners will be able to

**CO1:** Summarize the principles of proper courtesy as they are practiced in the workplace.

**CO2:** Apply proper courtesy in different professional situations.

**CO3:** Practice and apply appropriate etiquettes in the working environment and day to day life.

**CO4:** Build proper practices personal and business communications of Ethics and Etiquettes.

**Course Contents**

1. **Introduction to Ethics:** Basics, Difference Between Morals, Ethics, and Laws, Engineering Ethics: Purpose of Engineering Ethics-Professional and Professionalism, Professional Roles to be played by an Engineer, Uses of Ethical Theories, Professional Ethics, Development of Ethics.
2. **Professional Ethics:** IT Professional Ethics, Ethics in the Business World, Corporate Social Responsibility, Improving Corporate Ethics, Creating an Ethical Work Environment, Including Ethical Considerations in Decision Making, Ethics in Information Technology, Common Ethical issues for IT Users, Supporting the Ethical Practices of IT users.
3. **Business Etiquette:** ABC's of Etiquette, Developing a Culture of Excellence, The Role of Good Manners in Business, Enduring Words Making Introductions and Greeting People: Greeting Components, The Protocol of Shaking Hands, Introductions, Introductory Scenarios, Addressing Individuals Meeting and Board Room Protocol: Guidelines for Planning a Meeting, Guidelines for Attending a Meeting.
4. **Professional Etiquette:** Etiquette at Dining, Involuntary Awkward Actions, How to Network, Networking Etiquette, Public Relations Office(PRO)'s Etiquettes, Technology Etiquette : Phone Etiquette, Email Etiquette, Social Media Etiquette, Video Conferencing Etiquette, interview Etiquette, Dressing Etiquettes : for interview, offices and social functions.

**References Books:**

1. Ghillyer, "Business Ethics Now", 3rd Edition, McGraw-Hill.
2. George Reynolds, "Ethics in information Technology", Cengage Learning, ISBN- 10:1285197151.
3. Charles E Harris, Micheat J. Rabins, "Engineering Ethics", Cengage Learning, ISBN- 13:978-1133934684,4th Edition.

**@The CO-PO Mapping Matrix**

| CO\ PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1    | -   | -   | -   | -   | -   | 1   | 1   | 3   | 1   | 2    | -    | 2    |
| CO2    | -   | -   | -   | -   | -   | 1   | 1   | 3   | 1   | 2    | -    | 2    |
| CO3    | -   | -   | -   | -   | -   | 1   | 1   | 3   | 1   | 2    | -    | 2    |
| CO4    | -   | -   | -   | -   | -   | 1   | 1   | 3   | 1   | 2    | -    | 2    |

**Savitribai Phule Pune University, Pune**  
**Third Year of Computer Engineering (2015 Course)**  
**310249: Audit Course 3**  
**AC3 – II: Professional Ethics and Etiquettes**

Professional ethics is the underlying concept behind the successful accomplishment of any act of a professional towards achieving the individual and societal goals. These goals should ultimately result in morally, legally, ethically and even culturally acceptable good things for all. Engineers being special group of professionals need to be more conscious of their acts since their duties, rights and responsibilities permeate into the society and the surroundings. To practice professional ethics, understanding of values and concepts are essential.

**Course Objectives:**

- To create awareness on professional ethics and Human Values.
- To provide basic familiarity about Engineers as responsible Experimenters, Research Ethics, Codes of Ethics, Industrial Standards.
- To inculcate knowledge and exposure on Safety and Risk.
- To expose students to right attitudinal and behavioral aspects

**Course Outcome:**

On completion of the course, learner will be able to–

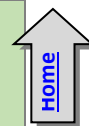
- understand the basic perception of profession, professional ethics, various moral issues & uses of ethical theories
- Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field.
- Follow Ethics as an engineering professional and adopt good standards & norms of engineering practice.
- apply ethical principles to resolve situations that arise in their professional lives

**Course Contents:**

- 1. Human Values And Engineering Ethics:** Morals, values and Ethics, Integrity, Work ethic, Civic virtue , Valuing time, Cooperation, Commitment, Empathy, Self-confidence , stress management, Senses of Engineering Ethics, Kohlberg’s theory, Gilligan’s theory, Models of professional roles, Uses of Ethical Theories.
- 2. Research Ethics and Codes of Ethics:** Industrial standardization, ethical code and its importance, ethical accountability, law in engineering, engineering as social experimentation.
- 3. Safety, Responsibilities And Rights:** Safety and Risk, Assessment of Safety and Risk, Risk Benefit Analysis and Reducing Risk collegiality, Collective Bargaining , Confidentiality , Conflicts of Interest, Professional Rights, Employee Rights, Intellectual Property Rights (IPR), Discrimination, Utilitarianism
- 4. Professional Etiquette:** Etiquette at Meetings, Public Relations Office(PRO)’s Etiquettes, Technology Etiquette Phone Etiquette, Email Etiquette, Social Media Etiquette, Video Conferencing Etiquette, Interview Etiquette, Dressing Etiquettes : for Interview, offices and social functions, Ethical Values: Importance of Work Ethics.

**Books:**

1. Caroline Whitbeck, “Ethics in Engineering Practice and Research”, Cambridge Press, ISBN:978-1-107-66847-8
2. Prabhuddha Ganguli: —Intellectual Property Rights| Tata Mc-Graw –Hill, New Delhi, ISBN-10:0070077177
3. Professional Ethics and Etiquette (Mastering Career Skills), Checkmark, ISBN-10: 0816071179
4. A Alavudeen, ”Professional Ethics And Human Values” Firewall, ISBN13 : 8131803066



**Savitribai Phule Pune University**  
**Second Year of Computer Engineering (2019 Course)**  
**210259: Code of Conduct**

| Teaching Scheme                | Credit Scheme         | Examination Scheme and Marks           |
|--------------------------------|-----------------------|--|
| <b>Tutorial: 01 Hours/Week</b> | <b>01<sup>±</sup></b> | <b>Term work<sup>±</sup>: 25 Marks</b> |

**Preamble:**

Engineering is one of the important and cultured professions. With respect to any engineering profession, engineers are expected to exhibit the reasonable standards of integrity and honesty. Engineering is directly or indirectly responsible to create a vital impact on the quality of life for the society. Acceptably, the services provided by engineers require impartiality, honesty, equity and fairness and must give paramount importance to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the principles of ethical conduct.

Prime aim is to recognize and evaluate ethical challenges that they will face in their professional careers through knowledge and exercises that deeply challenge their decision making processes and ethics.

**Course Objectives:**

- To promote ethics, honesty and professionalism.
- To set standards that are expected to follow and to be aware that if one acts unethically what are the consequences.
- To provide basic knowledge about engineering Ethics, Variety of moral issues and Moral dilemmas, Professional Ideals and Virtues
- To provide basic familiarity about Engineers as responsible Experimenters, Research Ethics, Codes of Ethics, Industrial Standards, Exposure to Safety and Risk, Risk Benefit Analysis
- To have an idea about the Collegiality and Loyalty, Collective Bargaining, Confidentiality, Occupational Crime, Professional, Employee, Intellectual Property Rights.

**Course Outcomes:**

On completion of the course, learner will be able to–

**CO1: Understand** the basic perception of profession, professional ethics, various moral and social issues, industrial standards, code of ethics and role of professional ethics in engineering field.

**CO2: Aware** of professional rights and responsibilities of an engineer, responsibilities of an engineer for safety and risk benefit analysis.

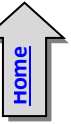
**CO3: Understand** the impact of the professional Engineering solutions in societal and Environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**CO4: Acquire** knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives.

### Course Contents

**The following are the certain guidelines as far as ethics and code of conduct are concerned to be clearly and elaborately explained to the students,**

Fundamental norms Engineers, in the fulfillment of their professional duties, should include paying utmost attention to the safety, health, and welfare of the society. Along with that engineers should execute the services only in their areas of competence. Whenever there is a need to issue public statements then such statements should be expressed in objective and truthful manner. Engineer should extend high sense of integrity by acting for each employer or client as faithful agents or trustees. Whatever may be the working scope engineer should conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.



As far as ethical practices are concerned engineers should not reveal facts, data, or information without the prior consent of the client or employer except as authorized or required by law or Code. Engineers should not permit the use of their name or associate in business ventures with any person or firm that they believe is engaged in fraudulent or dishonest enterprise moreover he/she should not aid or abet the unlawful practice of engineering by a person or firm.

Engineers having knowledge of any alleged violation of the Code should report thereon to appropriate professional bodies and, when relevant, also to public authorities, and cooperate with the proper authorities in furnishing such information or assistance as may be required. Engineers should disclose all known or potential conflicts of interest that could influence or appear to influence their judgment or the quality of their services. Engineers should not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed and agreed to by all interested parties. Engineers should not solicit or accept financial or other valuable consideration, directly or indirectly, from outside agents in connection with the work for which they are responsible.

Engineers should never falsify their qualifications or permit misrepresentation of their or their associates' qualifications. They shall not misrepresent or exaggerate their responsibility in or for the subject matter of prior assignments. Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint ventures, or past accomplishments.

Engineers should not offer, give, solicit, or receive, either directly or indirectly, any contribution to influence the award of a contract by public authority, or which may be reasonably construed by the public as having the effect or intent of influencing the awarding of a contract. They should not offer any gift or other valuable consideration in order to secure work. They should not pay a commission, percentage, or brokerage fee in order to secure work, except to a bona fide employee or bona fide established commercial or marketing agencies retained by them.

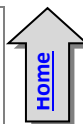
There are certain obligations accompanied with engineering profession. Engineers should acknowledge their errors and should not distort or alter the facts. Candid advises in special cases are always welcome. Engineers should not accept outside employment to the detriment of their regular work or interest. Before accepting any outside engineering employment, they will notify their employers.

Engineers should not promote their own interest at the expense of the dignity and integrity of the profession furthermore they should treat all persons with dignity, respect, fairness, and without discrimination. Engineers should at all times strive to serve the public interest. Engineers are encouraged to participate in civic affairs; career guidance for youths; and work for the advancement of the safety, health, and well-being of their community. Engineers are encouraged to adhere to the principles of sustainable development in order to protect the environment for future generations. Engineers shall continue their professional development throughout their careers and should keep current in their specialty fields by engaging in professional practice, participating in continuing education courses, reading in the technical literature, and attending professional meetings and seminar.

Engineers should not, without consent, use equipment, supplies, laboratory, or office facilities of an employer to carry on outside private practice. They should not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action. "Sustainable development" is the challenge for the engineers meeting human needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management while conserving and protecting environmental quality and the natural resource base essential for future development.

**Following are contents to be covered in tutorial session-**





1. **Introduction to Ethical Reasoning and Engineer Ethics:** Senses of 'Engineering Ethics' – Variety of moral issues – Types of inquiry – Moral dilemmas – Moral Autonomy – Kohlberg's theory – Gilligan's theory – Consensus and Controversy – Professions and Professionalism – Professional Ideals and Virtues – Uses of Ethical Theories.
2. **Professional Practice in Engineering :** Global Issues -Multinational Corporations – Business Ethics - Environmental Ethics – Computer Ethics - Role in Technological Development – Weapons Development – Engineers as Managers – Consulting Engineers – Engineers as Expert Witnesses and Advisors – Honesty – Moral Leadership – Sample Code of Conduct
3. **Ethics as Design** - Doing Justice to Moral Problems : Engineer's Responsibility for Safety - Safety and Risk – Assessment of Safety and Risk – Risk Benefit Analysis – Reducing Risk – The Government Regulator's Approach to Risk
4. **Workplace Responsibilities and Rights** - Collegiality and Loyalty – Respect for Authority – Collective Bargaining – Confidentiality – Conflicts of Interest – Occupational Crime – Professional Rights – Employee Rights – Intellectual Property Rights (IPR) – Discrimination
5. **Computers, Software, and Digital Information**
6. **Responsibility for the Environment**

#### #Exemplar/Case Studies :

General Motors ignition switch recalls (2014), Space Shuttle Columbia disaster (2003), Space Shuttle Challenger disaster (1986), Therac-25 accidents (1985 to 1987), Chernobyl disaster (1986), Bhopal disaster (1984), Kansas City Hyatt Regency walkway collapse (1981)

#### Guidelines for Conduction:

The course will exemplify the budding engineers the Code of Conduct and ethics pertaining to their area and scope of their work. The Instructor/Teacher shall explain the students the importance and impact of the ethics and code of conduct.

Confined to various courses and project/mini-project development the possible vulnerabilities and threats need to be elaborated and the students' participation need to be encouraged in designing such document explicitly mentioning Code of Conduct and Disclaimers.

#### Suggested set of Activities

1. **Purpose**-Introduce the concept of Professional Code of Conduct  
**Method** – Using Group Discussion as a platform, ask students to share one practice in their family / home that everyone has to follow. For ex. not wearing footwear in the house, taking a bath first thing in the morning, seeking blessings from elders, etc. Connect this Code of Conduct in their family to one that exists in the professional world  
**Outcome** – Awareness of profession-specific code of conduct and importance of adherence of that code specified. Ability to express opinions verbally and be empathetic to diverse backgrounds and values
2. **Purpose**-Impress upon the students, the significance of morality  
**Method** – Role play a professional situation where an engineer is not competent and is trying to copy the work of a colleague and claim credit for that work. Ask observing students to react to that situation. Alternatively, a short video that clearly shows unethical behavior can be played and ask viewers their opinion about the situation. Note to teachers – read about Kohlber's theory and Gilligan's theory to understand levels of moral behavior  
**Outcome** – Incite students to contemplate their own immoral behavior in public space or academic environment (like copying homework or assignment). Will coax students to introspect their own values and encourage them to choose the right path
3. **Purpose**-Highlight the importance of professional ideals like conflict management, ambition, ethical manners and accountability  
**Method** – Each student will have to write a 200 word essay on any of above mentioned virtues of being a good professional. On evaluation, the top 5 essays can be displayed on the college wall magazine and rewarded if deemed appropriate  
**Outcome** – Learn to express one's ideas and identify and relate to good virtues. Build writing skills, improve language and gain knowledge about how to write an impactful essay





- 4. Purpose**–Make students aware of proper and globally accepted ethical way to handle work, colleagues and clients  
**Method** – Teacher can form groups of 6 – 7 students and assign them different cases (these can be accessed online from copyright free websites of B-school content)  
**Outcome** – Develop group communication skills. Learn to speak up one’s opinion in a forum. Cultivate the habit of presenting solution-driven analytical arguments making them contributors in any team.
- 5. Purpose** – Make students aware that technology can be harmful if not used wisely and ethically  
**Method** – Conduct a quiz on various ethical dilemmas that are relevant in today’s world pertaining to privacy right, stalking, plagiarism, hacking, weaponizing technology, AI, electronic garbage creating environmental hazard etc  
**Outcome** – Make students aware of various adverse consequences of technology development and allow them to introspect on how to use technology responsibly.
- 6. Purpose** – Expose students to professional situations where engineers must use their skills ethically and for the betterment of society and nation  
**Method** – Students in groups of 4 can be given an assignment in the earlier session to present in front of the class one specific case where they felt unethical treatment has been meted out to a person by an engineer – either as a witness, advisor, dishonesty, improper skills testimony etc. The group has to make a short presentation and also suggested plausible solutions to that situation. Q&A from other students must encouraged to allow healthy discussion  
**Outcome** – Become aware of unethical code of conduct in the professional world and how to follow a moral compass especially when one reaches positions of power.
- 7. Purpose** – Provide an insight into rights and ethical behavior.  
**Method** – Movies like The Social Network can be played and students can be asked to discuss their opinion about collegiality, intellectual property, friendship and professional relationships  
**Outcome** – help them look at success stories from an ethical point of view. Develop critical thinking and evaluation of circumstances.
- 8. Purpose** – Make students contemplate about ideal and safe professional environment and decide on making right decisions based on codes of conduct  
**Method** – Students can be asked to write down 5 most important codes of conduct that they feel that every computer engineer should follow. After evaluation by teacher / experts, the collection of codes can be converted into a handbook to be given to every student as a memoir to help them in their professional life.  
**Outcome** – Introspection and think about how to shape the professional environment. Also, when they carry back with them their own codes of conduct, they could feel bound to adhere to these ethics.

### Term Work Assessment Guidelines

**Students must submit the report of all conducted activities.** The brief guidelines for report preparations are as follows:

1. One activity report must be of maximum 3 pages;
2. Combined Report of all activities with cover pages, table of contents and certificate (signed by instructor) is to be submitted in soft copy (pdf) format only.
3. The report must contain:
  - General information about the activity;
  - Define the purpose of the activity;
  - Detail out the activities carried out during the visit in chronological order;
  - Summarize the operations / process (methods) during the activities;
  - Describe what you learned (outcomes) during the activities as a student;
  - Add photos of the activity;(optional)
  - Add a title page to the beginning of your report;
  - Write in clear and objective language; and
  - Get well presented, timely and complete report submitted.

**Recommended Assessment and Weightage Parameters:**

( Attendance 30%, Assignments/Activities- Active participation and proactive learning 50% and report 20%)

**Term Work Assessment Guidelines**

**Students must submit the report of all conducted activities** conducted during Tutorial (Outside Classroom) of at least 04 activities (out of 07 activities) from group (of 02-03) students.

The brief guidelines for report preparations are as follows:

1. One activity report must be of maximum 3 pages;
2. Combined Report of all activities with cover pages, table of contents and certificate (signed by instructor) is to be submitted in soft copy (pdf) format only.
3. The report must contain:
  - General information about the activity;
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  - Add photos of the activity;(optional)
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  - Write in clear and objective language; and
  - Get well presented, timely and complete report submitted.

**Recommended Assessment and Weightage Parameters:**

( Attendance 30%, Active participation and proactive learning 50% and report 20%)

**Web Links:**

- <https://www.ieee.org/about/compliance.html>
- <https://www.cs.cmu.edu/~bmclaren/ethics/caseframes/91-7.html>
- <https://www.nspe.org/>
- [http://www.ewh.ieee.org/soc/pes/switchgear/presentations/tp\\_files/2017-1\\_Thurs\\_Shiffbauer\\_Singer\\_Engineering\\_Ethics.pdf](http://www.ewh.ieee.org/soc/pes/switchgear/presentations/tp_files/2017-1_Thurs_Shiffbauer_Singer_Engineering_Ethics.pdf)

**MOOC/ Video lectures available at:**

- [https://swayam.gov.in/nd1\\_noc20\\_mg44/preview](https://swayam.gov.in/nd1_noc20_mg44/preview)

**@The CO-PO Mapping Matrix**

| CO\PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1   | -   | -   | -   | -   | -   | -   | 2   | 2   | -   | -    | -    | -    |
| CO2   | -   | -   | -   | -   | -   | -   | 2   | 2   | -   | -    | -    | -    |
| CO3   | -   | -   | -   | -   | -   | -   | 3   | 2   | -   | -    | -    | -    |
| CO4   | -   | -   | -   | -   | -   | -   | 2   | 3   | -   | -    | -    | -    |

**Savitribai Phule Pune University, Pune**  
**Third Year of Mechanical, Mechanical Sandwich & Automobile**  
**(2015 Course)**

**Course Code: 302054**

**Course Name : Audit Course III - Intellectual Property Right**

|                         |                  |   |                    |
|-------------------------|------------------|---|--------------------|
| <b>Teaching Scheme:</b> | <b>Credits</b>   | <b>Examination Scheme: Audit (P/F)</b><br>Written and MCQ |                    |
| <b>PR:</b>              | <b>Th/Tut:--</b> | <b>TH</b>   | <b>In-Sem: --</b>  |
|                         |                  |   | <b>End-Sem: --</b> |
| <b>Tut:</b>             | <b>TW:</b>       |   | <b>PR: --</b>      |
|                         |                  |   | <b>OR: --</b>      |

**Objective:**

Intellectual property refers to the rights which are attached to the creation of the mind and which take the form of a property. Though intangible in nature, intellectual property has become the driving force of many companies today. Fortune 500+ companies undoubtedly are the best examples of what a company can achieve through the proper understanding and management of IPR.

Thus the study of intellectual property rights is inevitable for managers, considering the fact that India is fast emerging as an economy with considerable investment in cutting-edge research and development. India is also emerging as an economy where foreign companies propose to invest considerably, both technically and financially, provided proper protection is guaranteed to their intangible assets which form the cornerstone of their business.

## **Topics:**

### 1. Introduction

- Concepts of IPR
- The history behind development of IPR
- Necessity of IPR and steps to create awareness of IPR

### 2. IP Management

- Concept of IP Management
- Intellectual Property and Marketing
- IP asset valuation

### 3. Patent Law

- Introduction to Patents
- Procedure for obtaining a Patent
- Licensing and Assignment of Patents
  - Software Licensing
  - General public Licensing
  - Compulsory Licensing
- Infringement of Patents
- Software patent US and Indian scenario

### 4. Copyrights

- Concept of Copyright Right
- Assignment of Copyrights
- Registration procedure of Copyrights
- Infringement (piracy) of Copyrights and Remedies
- Copyrights over software and hardware

### 5. Designs

- Concept of Industrial Designs
- Registration of Designs
- Piracy of registered designs and remedies

### 6. Trademark Law

- Concept of trademarks
- Importance of brands and the generation of “goodwill”
- Trademark registration procedure
- Infringement of trademarks and Remedies available
- Assignment and Licensing of Trademarks

**Case Study & Group Work:**

- Identify the projects (products or processes) carried out by your institution or an organization in your vicinity, which have been patented.
- A case study on significance of patents for a developing nation like India.
- Group discussion on creative / novel ideas and the feasibility of converting the idea into product or process.
- Discussion on Correlation between IPR and Entrepreneurship in the backdrop of Make in India Initiative.

**References:**

1. Ganguli Prabuddha, 'Intellectual Property Rights: Unleashing the knowledge economy', Tata McGraw Hill, New Delhi
2. Wadehra R. L., 'Law Relating to patents, trademarks, copyrights, designs and geographical indicators – 2<sup>nd</sup>', Universal Law Publishing.
3. Narayan P. S. 'Intellectual Property Law in India', Asia Law House Hyderabad.

## AC4-II: Intellectual Property Rights and Patents

Intellectual property is the area of law that deals with protecting the rights of those who create original works. It covers everything from original plays and novels to inventions and company identification marks. The purpose of intellectual property laws is to encourage new technologies, artistic expressions and inventions while promoting economic growth.

Innovation and originality have great potential value. Whatever line of activity you are engaged in, future success depends on them. The last few years have seen intellectual property rights become an issue of general interest: the smart phone “patent wars”, the introduction of Digital Rights management (DRM) and the rise of generic pharmaceuticals and open-source software are just some examples that have been in the public eye. Protecting your intellectual rights appropriately should be at a priority. Yet too many people embark on their chosen professions without even a basic awareness of intellectual property.

### Course Objectives:

- To encourage research, scholarship, and a spirit of inquiry
- To encourage students at all levels to develop patentable technologies.
- To provide environment to the students of the Institute for creation, protection, and commercialization of intellectual property and to stimulate innovation.

### Course Outcomes:

On completion of the course, learner will be able to–

- CO1: Understand** the fundamental legal principles related to confidential information, copyright, patents, designs, trademarks and unfair competition
- CO2: Identify, apply** and **assess** principles of law relating to each of these areas of intellectual property
- CO3: Apply** the appropriate ownership rules to intellectual property you have been involved in creating

## Course Contents

1. **Introduction to Intellectual Property Law** – The Evolutionary Past – The IPRT Toolkit – Para-Legal Tasks in Intellectual Property Law
2. **Introduction to Trade mark** – Trade mark Registration Process – Post registration Procedures – Trade mark maintenance – Transfer of Rights – Inter partes Proceeding – Infringement – Dilution Ownership of Trade mark
3. **Introduction to Copyrights** – Principles of Copyright Principles – The subjects Matter of Copy right – The Rights Afforded by Copyright Law – Copy right Ownership, Transfer and duration – Right to prepare Derivative works
4. **Introduction to Trade Secret** – Maintaining Trade Secret – Physical Security – Employee Limitation – Employee confidentiality agreement

### Reference:

1. Debirag E. Bouchoux, “Intellectual Property” Cengage learning, New Delhi, ISBN-10:1111648573
2. Ferrera, Reder, Bird, Darrow, “Cyber Law. Texts and Cases”, South-Western’s Special Topics Collections, ISBN:0-324-39972-3
3. Prabhuddha Ganguli, “Intellectual Property Rights”, Tata Mc-Graw–Hill, NewDelhi, ISBN-10:0070077177

### @The CO-PO Mapping Matrix

| CO\PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1   | -   | -   | -   | -   | -   | -   | -   | 1   | -   | -    | -    | 1    |
| CO2   | -   | -   | -   | -   | -   | -   | -   | 2   | -   | -    | -    | 1    |
| CO3   | -   | -   | -   | -   | -   | -   | -   | 1   | -   | -    | -    | 1    |



| <p style="text-align: center;"><b>Savitribai Phule Pune University, Pune</b><br/> <b>Third Year of Mechanical, Mechanical Sandwich &amp; Automobile</b><br/> <b>(2015 Course)</b></p>  |                  |   |                    |
|--|------------------|---|--------------------|
| <b>Course Code: 302054</b>   |                  | <b>Course Name : Audit Course IV - Lean Management</b>    |                    |
| <b>Teaching Scheme:</b>  | <b>Credits</b>   | <b>Examination Scheme: Audit (P/F)</b><br>Written and MCQ |                    |
| <b>PR:</b>   | <b>Th/Tut:--</b> | <b>TH</b>   | <b>In-Sem: --</b>  |
|  |                  |   | <b>End-Sem: --</b> |
| <b>Tut:</b>  | <b>TW:</b>       |   | <b>PR: --</b>      |
|  |                  |   | <b>OR: --</b>      |
| <b>Course Objective:</b>   |                  |   |                    |
| <ul style="list-style-type: none"> <li>• To learn Lean Thinking and its applications</li> <li>• To get knowledge of Tools &amp; Techniques used in Lean Management</li> <li>• To understand Business Impact of Lean Management</li> </ul>  |                  |   |                    |
| <b>Course Outcome: Students</b>  |                  |   |                    |
| <ul style="list-style-type: none"> <li>• Will be able to do practice Lean Management at the workplace</li> <li>• Will be able to contribute in Continuous Improvement program of the Organization</li> </ul>   |                  |   |                    |
| <b>Course Contents:</b>  |                  |   |                    |
| <ul style="list-style-type: none"> <li>• Brief History of Lean Thinking</li> <li>• Toyota Production System</li> <li>• Five Steps to Lean</li> <li>• Seven Types of MUDA – Waste in Manufacturing</li> <li>• MURA – Unevenness / Fluctuation</li> <li>• MURI – Overburden, Physical Strain</li> <li>• Lean Tools &amp; Techniques</li> <li>• Value Stream Mapping</li> <li>• Five ‘S’</li> <li>• Visual Management</li> <li>• Plan-Do-Check-Act (PDCA)</li> <li>• Kanban</li> <li>• Lean Distribution</li> <li>• Various Lean Management Systems</li> <li>• Just In Time Production</li> <li>• Total Quality Management (TQM)</li> <li>• Total Productive Maintenance (TPM)</li> <li>• Problem Solving Techniques</li> <li>• A3 Reporting Technique</li> </ul> |                  |   |                    |

**Books:****References:**

1. Lean Thinking: Banish Waste and Create Wealth in Your Corporation, Second Edition James P. Womack and Daniel T. Jones, Free Press, June 2003, ISBN: 0743249275
2. Learning to See: Value Stream Mapping to Create Value and Eliminate Muda Mike Rother and John Shook, Lean Enterprise Institute, June 2003, ISBN: 0966784308
3. Lean Production Simplified: A Plain-Language Guide to the World's Most Powerful Production System, Second Edition Pascal Dennis, Productivity Press Inc, September 2007, ISBN: 9781563273568
4. Gemba Kaizen: A Commonsense, Low-Cost Approach to Management Masaaki Imai, McGraw-Hill, March 1997, ISBN: 0070314462
5. World of Kaizen : By Shyam Talawadekar Paperback Publisher: Kaizen Publisher; 4 th edition (2016) ISBN-10: 819326780X ISBN-13: 978-8193267806

**Savitribai Phule Pune University, Pune**  
**Third Year of Mechanical, Mechanical Sandwich & Automobile**  
**(2015 Course)**

**Course Code: 302054**

**Course Name : Audit Course V - Smart Manufacturing**

|                         |                  |  |                    |
|-------------------------|------------------|--|--------------------|
| <b>Teaching Scheme:</b> | <b>Credits</b>   | <b>Examination Scheme:</b> Audit(P/F)<br>Written and MCQ |                    |
| <b>PR:</b>              | <b>Th/Tut:--</b> | <b>TH</b>  | <b>In-Sem: --</b>  |
|                         |                  |  | <b>End-Sem: --</b> |
| <b>Tut:</b>             | <b>TW:</b>       |  | <b>PR: --</b>      |
|                         |                  |  | <b>OR: --</b>      |

**Description:**

Smart Manufacturing is an amalgamation of Information Technology, Cloud Computing & traditional Mechanical, Production Engineering towards achieving excellence in manufacturing. Maximum results with minimum resources being used. The course will introduce the concepts of Smart Manufacturing, how various technologies can be leveraged to achieve minimum breakdowns, First Time Right Production, 100% Delivery on Time with minimum turnaround time. Nine Pillars of Smart Manufacturing will be explained to the Students.

The course will make the students aware of developments in Technology those are going to alter the Traditional Manufacturing scenario. The following topics may be broadly covered in the classroom. The practical will be in the form of Group Discussion based on Case Study.

**Course Objective:**

- To know more about Smart Manufacturing & Industry 4.0
- To get knowledge of various converging Technologies
- To prepare ourselves for the ever changing Manufacturing Techniques

**Course Outcome: The students will be**

- Comfortable with terminology and practices in Smart Manufacturing
- Able to face the challenges in Industry & also contribute towards advancement.
- Active part of Industry 4.0 (Fourth Industrial Revolution)

**Course Contents:**

- Introduction to Industry 4.0
- Historical Background
- Nine Pillars of Smart Manufacturing
- Big Data & analytics
- Autonomous Robots
- Simulation
- Universal System Integration
- IIOT – Industrial Internet of Things
- 3 D Printing – Additive Manufacturing
- Cloud Computing
- Augmented Reality
- Convergence of Nine Pillars
- Business Propositions delivered with Smart Manufacturing
- Adding Smartness to Manufacturing – Adoption & Scaling
- Economic Aspects
- Ecosystem Required for Smart Manufacturing
- Skill set Required for Smart Manufacturing
- Effects on 4 M- Man, Machine, Materials & Methods in Smart Manufacturing

**References:**

1. Smart Manufacturing by Shoukat Ali; Publisher: LAP LAMBERT Academic Publishing (10 August 2016)Language: EnglishISBN-10: 3659933554ISBN-13: 978-3659933554
2. Industry 4.0: The Industrial Internet of Things 2016by Alasdair Gilchrist (Author)  
Publisher: Apress; 1st ed. edition (30 July 2016)  
Language: English  
ISBN-10: 1484220463  
ISBN-13: 978-1484220467
3. Industry 4.0 Data Analytics31 July 2016 by Rajesh Agnihotri and Samuel New  
Publisher: CreateSpace Independent Publishing Platform (31 July 2016)  
Language: English  
ISBN-10: 1534778284  
ISBN-13: 978-1534778283
4. 3D Printing: The Next Industrial Revolution4 May 2013by Christopher Barnatt  
Publisher: Createspace Independent Publishing Platform (4 May 2013)  
Language: English  
ISBN-10: 148418176X  
ISBN-13: 978-1484181768
5. Augmented Reality: Principles and Practice by Dieter Schmalstieg and Tobias Hollerer  
Publisher: Pearson Education; First edition (5 October 2016)  
Language: English  
ISBN-10: 9332578494  
ISBN-13: 978-9332578494

## **LIST OF EXPERIMENTS / CASE STUDIES**

### **Case Study & Group Work:**

- Identification of areas where Smart Manufacturing can flourish
- Business Goals achieved through Smart Manufacturing
- Compilation of Results & Presentation