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DR. (MRS.) SUNANDA M. NAVALE
 B.A., M.P.M., Ph.D.
 FOUNDER SECRETARY

DR. A. V. DESHPANDE
 B.E., M. E.(Computer Engg.), Ph.D.
 PRINCIPAL

Date: 23/01/2023

To,
 The Director
 National Assessment and Accreditation Council (NAAC)
 P.O. Box No. 1075, Nagarbhavi,
 Bengaluru- 560 072

Subject: Proofs of Metric No. 1.3.1

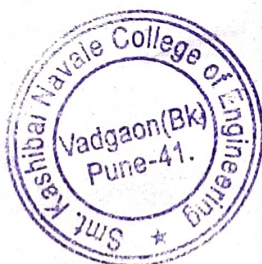
Reference: Metric no. *1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum.*

Dear Sir/Madam,

This metric gives all information about crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum during the AY 2021-22.

Dept.	Computer Engg.	IT	E&TC Engg	Mech. Engg	Engg. Science	MBA	Total
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Thanking you,



(Dr. A. V. Deshpande)

Principal

Principal
 Smt. Kashibai Navale
 College of Engineering
 Vadgaon(Bk.), Pune - 41.

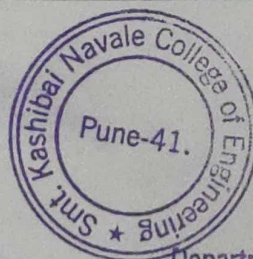


**Sinhgad Technical Education Society's
SMT. KASHIBAI NAWALE COLLEGE OF ENGINEERING, PUNE-41
Department of Computer Engineering**

**Criteria I
Academic Year : 2021-22
Curricular Aspects
Institute Integrates Crosscutting Issues**

1.3.1

Sr.no.	Class	Pattern	w.e.f.	List of Courses
1	S.E	2019	2020-21	Green Construction and Design
				Social Awareness and Governance program
				Environmental studies
				Smart Cities
				Water Management
				Intellectual Property Rights and Patents
				The Science of happiness
2	T.E	2019	2021-22	Professional Ethics and Etiquettes
				Foreign Language
				Internet of Things and Embedded Systems



**Prof. R.H.Borhade
HOD
Computer Engineering
Head**

Department of Computer Engineering
SKNCOE, Pune - 411 041

Department Of Computer Engineering

1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

1. List of the courses that address crosscutting issues:

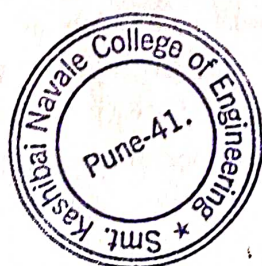
Core courses	Course Name
SE Computer 2019 Course	Green Construction and Design
SE Computer 2019 Course	Social Awareness and Governance Program
SE Computer 2019 Course	Environmental Studies
SE Computer 2019 Course	Smart Cities
SE Computer 2019 Course	Water Management
SE Computer 2019 Course	Intellectual Property Rights and Patents
SE Computer 2019 Course	The Science of Happiness
TE Computer 2019 Course	Professional Ethics and Etiquettes
TE Computer 2019 Course	Foreign Language
TE Computer 2019 Course	Internet of Things and Embedded Systems


2. Description of courses which address the crosscutting issues

Core Courses	Course Name	Cross- cutting	Issue Description of course
SE Computer 2019 Course	Green Construction and Design	Human Values, Ethics, Environment and Sustainability	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
SE Computer 2019 Course	Social Awareness and Governance	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics of

	Program		reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
SE Computer 2019 Course	Environmental Studies	Human Values, Ethics, Environment and Sustainability	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
SE Computer 2019 Course	Smart Cities	Human Values, Ethics, Environment and Sustainability	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
SE Computer 2019 Course	Water Management	Human Values, Ethics, Environment and Sustainability	Core objective of this course is to expose students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
SE Computer 2019 Course	Intellectual Property Rights and Patents	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
SE Computer 2019 Course	The Science of Happiness	Human Values, Ethics	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
TE Computer 2019 Course	Professional Ethics and Etiquettes	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
TE Computer 2019 Course	Foreign Language	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening

			comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
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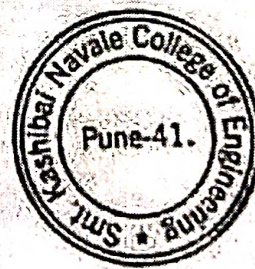

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 SKNCOE, Pune - 411 041

**Faculty of Science and Technology
Savitribai Phule Pune University
Maharashtra, India**



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**Curriculum
for
Third Year of Computer Engineering
(2019 Course)
(With effect from 2021-22)**



RHB

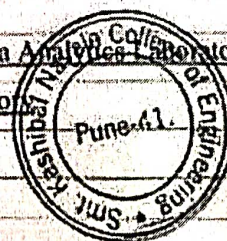
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Department of Computer Engineering
SKNCOE, Pune - 411 041

Savitribai Phule Pune University
Third Year of Computer Engineering (2019 Course)
 (With effect from Academic Year 2021-22)

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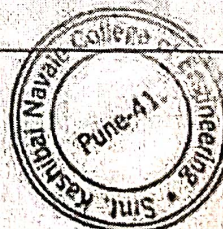


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Third Year of Computer Engineering (2019 Course)
(With effect from Academic Year 2021-22)

Semester VI

Semester VI														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
310251	<u>Data Science and Big Data Analytics</u>	03	-	-	30	70	-	-	-	100	03			03
310252	<u>Web Technology</u>	03	-	-	30	70	-	-	-	100	03			03
310253	<u>Artificial Intelligence</u>	03	-	-	30	70	-	-	-	100	03			03
310254	<u>Elective II</u>	03	-	-	30	70	-	-	-	100	03			03
310255	<u>Internship</u>	-	04	-	-	-	100	-	-	100		04		04
310256	<u>Data Science and Big Data Analytics Laboratory</u>	-	04	-	-	-	25	-	50	75		02		02
310257	<u>Web Technology Laboratory</u>	-	04	-	-	-	25	50	-	75		02		02
310258	<u>Laboratory Practice II</u>	-	02	-	-	-	50	-	-	50		01		01
310259	<u>Audit Course 6</u>													
Total											12	09	-	21
Total		12	14	-	120	280	200	50	50	700	12	09	-	21
Elective II						Audit Course 6								
<ul style="list-style-type: none">• <u>Information Security</u>• <u>Augmented and Virtual Reality</u>• <u>Cloud Computing</u>• <u>Software Modeling and Architectures</u>						<ul style="list-style-type: none">• <u>Digital and Social Media Marketing</u>• <u>Sustainable Energy Systems</u>• <u>Leadership and Personality Development</u>• <u>Foreign Language</u>• <u>MOOC- Learn New Skills</u>								
Laboratory Practice II														
Assignments from Artificial Intelligence and Elective II.														



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**Faculty of Science and Technology
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Maharashtra, India**



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**Curriculum
for
Second Year of Computer Engineering
(2019 Course)
(With effect from 2020-21)**

RJP

Head

Department of Computer Engineering
SKNCOE, Pune - 411 041



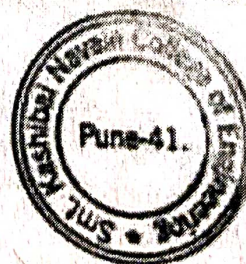
Savitribal Phule Pune University
Third Year of Computer Engineering (2019 Course)
 (With effect from Academic Year 2021-22)

Semester V

Semester V														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
310241	Database Management Systems	03	-	-	30	70	-	-	-	100	03	-	-	03
310242	Theory of Computation	03	-	-	30	70	-	-	-	100	03	-	-	03
310243	Systems Programming and Operating System	03	-	-	30	70	-	-	-	100	03	-	-	03
310244	Computer Networks and Security	03	-	-	30	70	-	-	-	100	03	-	-	03
310245	Elective I	03	-	-	30	70	-	-	-	100	03	-	-	03
310246	Database Management Systems Laboratory	-	04	-	-	-	25	50	-	50	-	02	-	02
310247	Computer Networks and Security Laboratory	-	04	-	-	-	-	-	50	50	-	02	-	02
310248	Laboratory Practice I	-	02	-	-	-	25	-	-	50	-	01	-	01
310249	Seminar and Technical Communication	-	01	-	-	-	50	-	-	50	-	01	-	01
310250	Audit Course 5													
Total Credit											15	06	-	21
Total		15	11	-	150	350	100	50	50	700	15	06	-	21
Elective I					Audit Course 5									
<ul style="list-style-type: none">Internet of Things and Embedded SystemsHuman Computer InterfaceDistributed SystemsSoftware Project Management					<ul style="list-style-type: none">Cyber SecurityProfessional Ethics and EtiquettesMOOC- Learn New SkillsEngineering EconomicsForeign Language									
Laboratory Practice I														
Assignments from System Programming and Operating System and Elective I														

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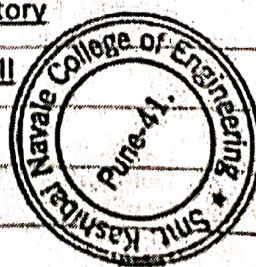
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Savitribai Phule Pune University
Second Year of Computer Engineering (2019 Course)
(With effect from Academic Year 2020-21)

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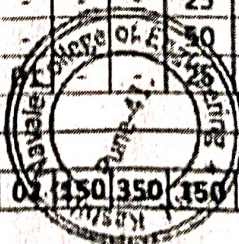
Savitribai Phule Pune University
Second Year of Computer Engineering (2019 Course)
 (With effect from Academic Year 2020-21)

Semester-III

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
210241	Discrete Mathematics	03	-	-	30	70	-	-	-	100	03	-	-	03
210242	Fundamentals of Data Structures	03	-	-	30	70	-	-	-	100	03	-	-	03
210243	Object Oriented Programming (OOP)	03	-	-	30	70	-	-	-	100	03	-	-	03
210244	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
210245	Digital Electronics and Logic Design	03	-	-	30	70	-	-	-	100	03	-	-	03
210246	Data Structures Laboratory	-	04	-	-	-	25	50	-	75	-	02	-	02
210247	OOP and Computer Graphics Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02
210248	Digital Electronics Laboratory	-	02	-	-	-	25	-	-	25	-	01	-	01
210249	Business Communication Skills	-	02	-	-	-	25	-	-	25	-	01	-	01
210250	Humanity and Social Science	-	-	01	-	-	25	-	-	25	-	-	01	01
210251	Audit Course 3													
Total Credit											15	06	01	22
Total		15	12	01	150	350	125	75	-	700	-	-	-	-

Semester-IV

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
207003	Engineering Mathematics III	03	-	01	30	70	25	-	-	125	03	-	01	04
210252	Data Structures and Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03
210253	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
210254	Microprocessor	03	-	-	30	70	-	-	-	100	03	-	-	03
210255	Principles of Programming Languages	03	-	-	30	70	-	-	-	100	03	-	-	03
210256	Data Structures and Algorithms Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02
210257	Microprocessor Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01
210258	Project Based Learning II	-	04	-	-	-	50	-	-	50	-	02	-	02
210259	Code of Conduct	-	-	-	-	-	-	-	-	25	-	-	01	01
210260	Audit Course 4													
Total Credit											15	05	02	22
Total		15	10	02	150	350	150	25	25	700	-	-	-	-





Savitribai Phule Pune University
Second Year of Engineering (2019 Course)
210251: Audit Course 3

In addition to credits, it is recommended that there should be audit course in preferably in each semester from second year. Student will be awarded the bachelor's degree if he/she earns 190 credits and clears all the audit courses specified in the syllabus. The student will be awarded grade as AP on successful completion of audit course.

The student may opt for one of the audit courses per semester, starting in second year first semester. Though not mandatory, such a selection of the audit courses helps the learner to explore the subject of interest in greater detail resulting in achieving the very objective of audit course's inclusion.

List of options offered is provided. Each student has to choose one audit course from the list per semester. Evaluation of audit course will be done at institute level itself. Method of conduction and method of assessment for audit courses are suggested.

Criteria:

The student registered for audit course shall be awarded the grade AP and shall be included such AP grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level itself.

Guidelines for Conduction and Assessment (Any one or more of following but not limited to):

- Lectures/ Guest Lectures
- Visits (Social/Field) and reports
- Demonstrations
- Surveys
- Mini Project
- Hands on experience on specific focused topic

Course Guidelines for Assessment (Any one or more of following but not limited to):

- Written Test
- Demonstrations/ Practical Test
- Presentations
- IPR/Publication
- Report

Audit Course 3 Options

Audit Course Code	Audit Course Title
AC3-I	Green Construction & Design
AC3-II	Social Awareness and Governance Program
AC3-III	Environmental Studies
AC3-IV	Smart Cities
AC3-V	Foreign Language (one of Japanese/Spanish/French/German). Course contents for Japanese(Module 1) are provided. For other languages institute may design suitably

Savitribai Phule Pune University
Second Year of Engineering (2019 Course)
210261: Audit Course 4



In addition to credits, it is recommended that there should be audit course in preferably in each semester from second year. Student will be awarded the bachelor's degree if he/she earns 190 as AP on successful completion of audit course.

The student may opt for one of the audit courses per semester, starting in second year first semester. Though not mandatory, such a selection of the audit courses helps the learner to explore the subject of interest in greater detail resulting in achieving the very objective of audit course's inclusion.

List of options offered is provided. Each student has to choose one audit course from the list per semester. Evaluation of audit course will be done at institute level itself. Method of conduction and method of assessment for audit courses are suggested.

Criteria:

The student registered for audit course shall be awarded the grade AP (Audit Course Pass) and shall be included such AP grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level itself.

Guidelines for Conduction and Assessment (Any one or more of following but not limited to):

- Lectures/ Guest Lectures
- Visits (Social/Field) and reports
- Demonstrations
- Surveys
- Mini Project
- Hands on experience on specific focused topic

Course Guidelines for Assessment (Any one or more of following but not limited to):

- Written Test
- Demonstrations/ Practical Test
- Presentations
- IPR/Publication
- Report

Audit Course 4 Options

Audit Course Code	Audit Course Title
AC4-I	Water Management
AC4-II	Intellectual Property Rights and Patents
AC4-III	The Science of Happiness
AC4-IV	Stress Relief: Yoga and Meditation
AC4-V	Foreign Language (one of Japanese/Spanish/French/German) Course contents for Japanese(Module 2) are provided. For other languages institute may design suitably.

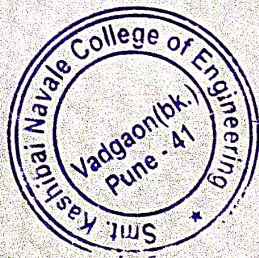
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SMT. KASHIBAI NAVALE COLLEGE OF ENGINEERING, PUNE-41.
DEPARTMENT OF INFORMATION TECHNOLOGY**

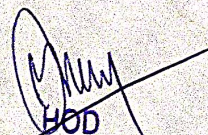


Sinhgad Institutes

Key Indicator – 1.3.1 Courses Enriching Curriculum

Sr. No.	Academic Year	Course Pattern	Course	Semester	Subject Code	Subject Name	Subject Credit
1	2021-2022	2019	SE	SEM-I	214449	Soft Skill Lab	2
					214450A	Ethics & Values in IT	Audit course(non credit)
				SEM-II	21445B	Project based Learning	2
					214459A	Water Supply & Treatment	Audit course(non credit)
					214459C	Waste Management & Pollution control	Audit course(non credit)
					214459D	Intellectual Property Rights	Audit course(non credit)
2	2021-2022	2019	TE	SEM-II	314455	Internship	4
					314454B(E-II)	Cyber Security	3
					314459B	Leadership & Personality Developments	Audit course(non credit)
3	2021-2022	2015	BE	SEM-I	414453	Information & Cyber security	3
					414460	Project Phase I	2
					414456C	Usability Engineering	3
					414461A	Emotional Intelligence	Audit course (non credit)
					414461B	Green Computing	Audit course (non credit)
				SEM-II	414464D	Internet & Web programming	4




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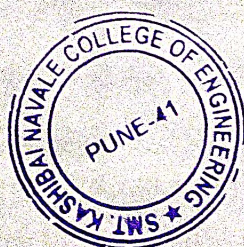
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Department of ___ Information Technology ___ Engineering


1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

1. List of the courses that address crosscutting issues

Information Technology

Sr. No.	Core Course	Course No.	Course Name
1	SE Information Technology	214449	Soft Skill Lab
2	SE Information Technology	214450A	Ethics & Values in IT
3	SE Information Technology	21445B	Project based Learning
4	SE Information Technology	214459A	Water Supply & Treatment
5	SE Information Technology	214459C	Waste Management & Pollution control
6	TE Information Technology	214459D	Intellectual Property Rights
8	TE Information Technology	314455	Internship
9	TE Information Technology	314454B (E-II)	Cyber Security
10	TE Information Technology	314459B	Leadership & Personality Developments
11	BE Information Technology	414453	Information & Cyber security
12	BE Information Technology	414460	Project Phase I
13	BE Information Technology	414456C	Usability Engineering
14	BE Information Technology	414461A	Emotional Intelligence
15	BE Information Technology	414461B	Green Computing
16	BE Information Technology	414464D	Internet & Web programming

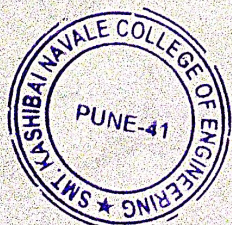


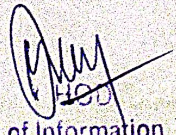

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2. Description of courses which address the crosscutting issues

Information Technology:

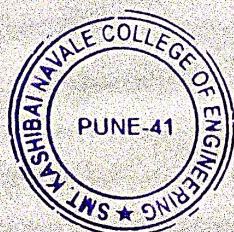
Core Course	Course No.	Course Name	crosscutting issues	Description of course
SE Information Technology	214449	Soft Skill Lab	Professional ethics	Understanding of Ethics & Moral The course highlights the importance of 1. To encourage the all-round development of students by focusing on soft skills. 2. To make the engineering students aware of the importance, the role and the content of soft skills through instruction, knowledge acquisition, demonstration and practice. 3. To develop and nurture the soft skills of the students through individual and group activities. 4.To expose students to right attitudinal and behavioral aspects and to build the same through activities
SE Information Technology	214450A	Ethics & Values in IT	Professional ethics , Sustainability	Ethics in Business World & IT. This course enables the students to understand meaning of following 1. To prepare the students to various forms of the Information Systems and its application in organizations. 2. To expose the students to the managerial issues relating to information systems and help them identify and evaluate various options in Information Systems.
SE Information Technology	21445B	Project based Learning	Human values, Social learning	This course enables students to relate daily issues with learning .while doing mini project in group student will learn




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				finding an issue, then study material available related to that project, finding materials required for its construction, to think in group and find solution and finally construct p
SE Information Technology	214459A	Water Supply & Treatment	Environmental Studies	Water requirement & water sources. This course highlights on knowledge about concepts and strategies related to sustainable development and various components of environment. Also creates awareness and gives information related to biotic and a biotic factors within an ecosystem
SE Information Technology	214459C	Waste Management & Pollution control	Environmental Studies	Water requirement & water sources. This course highlights on knowledge about concepts and strategies related to sustainable development and various components of environment. Also creates awareness and gives information related to biotic and a biotic factors within an ecosystem
SE Information Technology	214459D	Intellectual Property Rights	Professional ethics	Intellectual property rights creates the awareness about new innovative ideas and also refers to the rights which are attached to the creation of the .
TE Information Technology	314455	Internship	Human values/Ethics/ Environmental studies	Understand the social economic & administrative consideration that influence working on environment & professional & social ethics. An internship is a learning experience of its own kind. Communication. Communication occurs in a variety of ways, but future employers are primarily interested in your ability to write and speak professionally. ...
TE Information Technology	314454B (E-II)	Cyber Security	Human Values, Ethical values, Professional ethics, Sustainability, Adaptability	To understand the digital forensics concepts & technique for conducting forensic exam on digital devices This course enables the students to understand meaning of 1. To offer an understanding of principle concepts, central topics and basic approaches in information and cyber security.

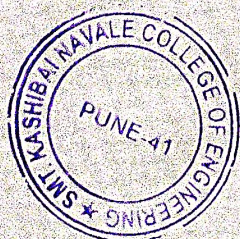



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				<p>2. To know the basics of cryptography.</p> <p>3. To acquire knowledge of standard algorithms and protocols employed to provide confidentiality, integrity and authenticity.</p> <p>4. To enhance awareness about Personally Identifiable Information (PII), Information Management, cyber forensics.</p>
TE Information Technology	314459B	Leadership & Personality Developments	Professional ethics , Human Values	<p>To develop personalities of students to empower them to get better insights to self responsibilities & personal life to built better human being.</p> <p>Generates awareness about</p> <p>1. To develop inter personal skills and be an effective goal oriented team player.</p> <p>2. To develop professionals with idealistic, practical and moral values.</p> <p>3. To develop communication and problem solving skills.</p> <p>4. To re-engineer attitude and understand its influence on behavior</p>
TE Information Technology	AC3-I	Green construction & design	Human Values, Ethical values, Environment and Sustainability	<p>To awareness of environment & ecosystem</p> <p>Components of Green Construction & Design:</p> <p>Energy Efficiency and Renewable Energy.</p> <p>Water Efficiency.</p> <p>Environmentally Preferable Building Materials and Specifications.</p> <p>Waste Reduction.</p> <p>Toxics Reduction.</p> <p>Indoor Air Quality.</p> <p>Smart Growth and Sustainable Development.</p>
TE Information Technology	AC3-II	Leadership & personality development	Professional ethics , Human Values	<p>To develop personalities of students to empower them to get better insights to self responsibilities & personal life to built better human being.</p> <p>Generates awareness about</p> <p>1. To develop inter personal skills and be an effective goal oriented team</p>

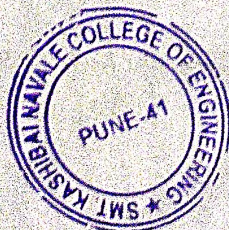


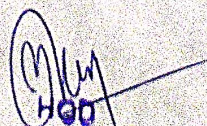
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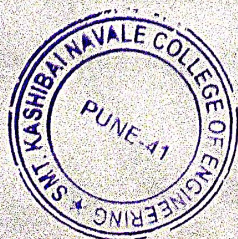
				<p>player.</p> <p>2. To develop professionals with idealistic, practical and moral values.</p> <p>3. To develop communication and problem solving skills.</p> <p>4. To re-engineer attitude and understand its influence on behavior</p>
BE Information Technology	414453	Information & Cyber security	Professional ethics, Sustainability, Adaptability	<p>To understand the digital forensics conceits & technique for conducting forensic exam on digital devices</p> <p>This course enables the students to understand meaning of</p> <p>1. To offer an understanding of principle concepts, central topics and basic approaches in information and cyber security.</p> <p>2. To know the basics of cryptography.</p> <p>3. To acquire knowledge of standard algorithms and protocols employed to provide confidentiality, integrity and authenticity.</p> <p>4. To enhance awareness about Personally Identifiable Information (PII), Information Management, cyber forensics.</p>
BE Information Technology	414460	Project Phase I	Human values/Ethics Social learning	<p>Students should able to implement their ideas industrial problems, current applications from their domain.</p> <p>This course enables students to relate daily issues with learning .while doing mini project in group student will learn finding an issue, then study material available related to that project, fining materials required for its construction, to think in group and find solution and finally construct project.</p>
BE Information Technology	414456C	Usability Engineering	Environmental Studies	<p>Human computer interaction</p> <p>Rapid growth of Information and Communication technologies has given opportunities to various startups, to introduce smart products/applications in our ecosystem. In the era of globalization, competition across</p>




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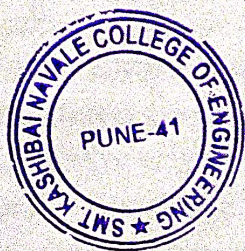
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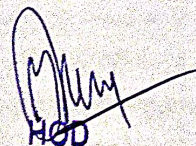
				<p>startups, specifically products are huge and if any start up or product fails to attract loyal consumer base, it is doomed to collapse. In order to ensure enhanced consumer interaction and their loyalty, aspects of human factors need to be engineered into these products. This is where Usability Engineering comes into existence. Usability focuses on qualitative and quantitative aspects of effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments. This is a detailed basic level course that would focus on user's psycho social and cognitive parameters, frameworks to capture and identify consumer/users individual parameters and ways to design and conceptualize functional products around them.</p>
BE Information Technology	414461A	Emotional Intelligence	Human values Ethics Social learning	<p>Based on self awareness, self regulation & motivation, empathy & personal skill. Earn emotional intelligence training for employees accepting and working on one's emotion. Emotional intelligence in leadership Work on self-awareness, self-regulation, motivation. Experienced Trainer. Courses: HR Generalist, Payroll, SHRM, Talent Acquisition.</p> <p>Resources to Increase Resilience, Focus, Emotional Intelligence & Leadership. Learn More About The Search Inside Yourself Program. Communicate Effectively. Develop Self-Awareness. Unleash Creativity. Increase Focus. Manage Your Stress.</p>
BE Information Technology	414461B	Green Computing	Environmental Studies.	<p>Used to minimize negative impact on the environment.</p> <p>Green computing is the environmentally responsible and eco-friendly use of computers and their resources. In broader terms, it is also defined as the study of designing, engineering, manufacturing, using and</p>



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				<p>disposing of computing devices in a way that reduces their environmental impact.</p> <p>It was conceived by the Environmental Protection Agency (EPA) in 1992 to promote energy efficiency in various appliances, such as laptops, washers, dryers, and refrigerators. Organizations use the Green Computing Lifecycle when designing and implementing green computing technologies.</p>
BE Information Technology	414464D	Internet & Web programming	Human values/Environmental studies	<p>It is used to develop web services & mobile web development skills. Web programming refers to the writing, markup and coding involved in Web development, which includes Web content, Web client and server scripting and network security. The most common languages used for Web programming are XML, HTML, JavaScript, Perl 5 and PHP.</p> <p>Typically it refers to the coding and programming side of web site production as opposed to the web design side. It encompasses everything from a simple page of HTML text to complex, feature-rich applications designed to be accessed from various Internet-connected devices.</p>




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DR. A. V. DESHPANDE
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PRINCIPAL

Savitribai Phule Pune University														
Second Year of Information Technology Engineering(2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-III														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
214441	Discrete Mathematics	03	-	01	30	70	25	-	-	125	03	-	01	04
214442	Logic Design and Computer Organization	03	-	-	30	70	-	-	-	100	03	-	-	03
214443	Data Structures and Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03
214444	Object Oriented Programming	03	-	-	30	70	-	-	-	100	03	-	-	03
214445	Basics of Computer Network	03	-	-	30	70	-	-	-	100	03	-	-	03
214446	Logic Design Computer Organization Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
214447	Data Structures and Algorithms Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214448	Object Oriented Programming Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214449	Soft Skill Lab	-	02	-	-	-	25	-	-	25	-	01	-	01
214450	Mandstory Audit Course 3	-	-	-	-	-	-	-	-	-	Non Credit			-
Total		15	12	01	150	350	125	75	-	700	15	06	01	22
Abbreviations:														
TH: Theory TW: Term Work PR: Practical														
OR: Oral TUT: Tutorial														
Note: Students of S.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)														

Abbreviations:

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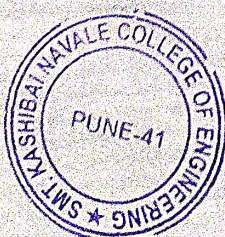
#Mandatory Audit Course 3:

214450A- Ethics and values in IT

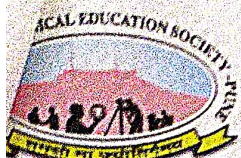
214450B - Quantitative Aptitude and Logical Reasoning

214450C- Language Study- Japanese- Module

214450D- Cyber Security and Law



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Savitribai Phule Pune University, Pune Second Year of Information Technology Engineering (2019 Course) (With effect from Academic Year 2020-21)

Semester-IV

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	Int-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
207003	Engineering Mathematics- III	03	-	01	30	70	25	-	-	125	03	-	01	04
214451	Processor Architecture	03	-	-	30	70	-	-	-	100	03	-	-	03
214452	Database Management System	03	-	-	30	70	-	-	-	100	03	-	-	03
214453	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
214454	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
214455	Programming Skill Development Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
214456	Database Management System Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214457	Computer Graphics Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
214458	Project Based Learning	-	04	-	-	-	50	-	-	50	-	02	-	02
214459	Mandatory Audit Course 4	-	-	-	-	-	-	-	-	-	Non Credit			-
Total		15	12	01	150	350	125	75	-	700	15	06	01	22

Abbreviations:

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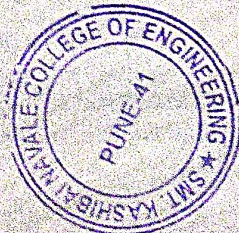
Mandatory Audit Course 4:

214459A - Water Supply and Treatment

214459B - Language Study- Japanese- Module II

214459C - Waste Management and Pollution Control

214459D - Intellectual Property Rights



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Second Year of Information Technology Engineering (2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-IV														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PE	OR	Total	PE	PR	TUT	Total
207003	Engineering Mathematics- III	03	-	01	30	70	25	-	-	125	03	-	01	04
214451	Processor Architecture	03	-	-	30	70	-	-	-	100	03	-	-	03
214452	Database Management System	03	-	-	30	70	-	-	-	100	03	-	-	03
214453	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
214454	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
214455	Programming Skill Development Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
214456	Database Management System Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214457	Computer Graphics Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
214458	Project Based Learning	-	04	-	-	-	50	-	-	50	-	02	-	02
214459	Mandatory Audit Course 4	-	-	-	-	-	-	-	-	-	Non Credit			-
Total		15	12	01	150	350	125	75	-	700	15	06	01	22

Abbreviations:

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Note: Students of S.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)

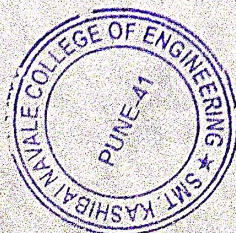
#Mandatory Audit Course 4:

214459A - Water Supply and Treatment

214459B - Language Study- Japanese- Module II

214459C - Waste Management and Pollution Control

214459D - Intellectual Property Rights



Savitribai Phule Pune University
Second Year Information Technology (2019 Course)

214449: Soft Skill Lab

Teaching Scheme:	Credit Scheme :	Examination Scheme:
Practical (PR) : 02 hrs/Week	01	TW : 25 Marks

Prerequisites , If any: -----

Course Objectives:

1. To facilitate a holistic development of students while focusing on enhancing soft skills.
2. To highlight the need to improve soft skills among engineering students so as to become good professionals.
3. To develop and nurture the soft skills of the students through individual and group activities.
4. To expose students to right attitudinal and behavioural aspects and assist in building the same through activities.

Course Outcomes:

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

CO1:Introspect about individual's goals, aspirations by evaluating one's SWOC and think creatively.

CO2: Develop effective communication skills including Listening, Reading, Writing and Speaking.

CO3:Constructively participate in group discussion, meetings and prepare and deliver Presentations.

CO4: Write precise briefs or reports and technical documents.

CO5:Practice professional etiquette, present oneself confidently and successfully handle personal interviews .

CO6:Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

COURSE CONTENTS

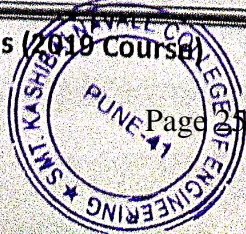
Unit I	Introspective & Self Development	04 hrs
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Introduction to soft skills, SWOC analysis, planning career, setting short-term & long-term goals, identifying difference between jobs & career, aligning aspirations with individual skills, understanding self-esteem, developing discipline and critically evaluating oneself

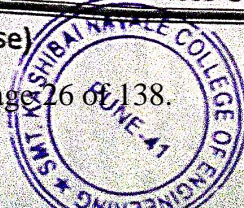
Mapping of Course Outcomes for Unit I	CO1, CO6	
Unit II	Communication Skills	04 hrs

Essentiality of good communication skills, importance of feedback, different types of communication, barriers in communication and how to overcome these barriers, significance of non-verbal messages as augmentation to verbal communication, group discussion, listening vs hearing, reading to comprehend, learning to skim and scan to extract relevant information, effective digital communication

Mapping of Course Outcomes for Unit II	CO2, CO3, CO5	
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Unit III	Language and Writing Skills	04 hrs
Fundamentals of english grammar, improve lexical resource, essential steps to improve spoken and written english, business vocabulary, writing – email, resume, formal letter, official communication, essay, presentation – planning, organizing, preparing and delivering professional presentation		
Mapping of Course Outcomes for Unit III	CO2, CO4	
Unit IV	Leadership Skills and Group Dynamics	04 hrs
Understanding corporate culture and leadership skills, difference between a leader and a manager, importance of resilience in a professional surrounding, developing empathy and emotional intelligence, being assertive and confident, 4-Ds of decision making, creative and solution-centric thinking, resolving conflicts, working cohesively as a team to achieve success, five qualities of an effective team – positivity, respect for others, trust, goal-focused, supportiveness		
Mapping of Course Outcomes for Unit IV	CO1, CO5, CO6	
Unit V	Ethics, Professional Etiquette	04 hrs
Understanding ethics and morals, importance of professional ethics, hindrances due to absence of work ethics, professional etiquette – introductions, with colleagues, attire, events, dinning, telephone, travelling, netiquette, social media, writing		
Mapping of Course Outcomes for Unit V	CO5, CO6	
Unit VI	Stress And Time Management	04 hrs
Stress as integral part of life, identifying signs and sources of stress, steps to cope with stress – open communication, positive thinking, belief in oneself, ability to handle failure, retrospective thinking for future learning, organizing skills to enhance time management, focusing on goals, smart work vs hard work, prioritizing activities, perils of procrastination, daily evaluation of “to-do” list.		
Mapping of Course Outcomes for Unit VI	CO1, CO3, CO6	
Text Book :		
1. Gajendra Singh Chauhan, Sangeeta Sharma, “Soft Skills – An Integrated Approach to Maximize Personality”, WILEY INDIA, ISBN:13:9788126556397		
Reference Books :		
1. Indrajit Bhattacharya, “An Approach to Communication Skills”, Delhi, Dhanpat Rai, 2008		
2. Simon Sweeney, “English for Business Communication”, Cambridge University Press, ISBN 13:978-0521754507		
3. Sanjay Kumar and Pushpa Lata, “Communication Skills”, Oxford University Press, ISBN 10:9780199457069		
4. Atkinson and Hilgard, “Introduction to Psychology”, 14th Edition, Geoffrey Loftus, ISBN-10:0155050699, 2003		
5. Kenneth G. Mcgee, “Heads Up: How to Anticipate Business Surprises & Seize Opportunities		



- First", Harvard Business School Press, Boston, Massachusetts, 2004, ISBN 10:1591392993
6. Krishnaswami, N. and Sriraman T., "Creative English for Communication", Macmillan

Guidelines for Student's Lab Journal and TW Assessment

Each student should have a Lab Workbook (sample workbook attached) which outlines each lab activity conducted. The student must respond by writing out their learning outcomes and elaborating the activities performed in the lab. Continuous assessment of laboratory work is to be done based on overall performance and lab assignments and performance of student. Each lab assignment assessment will be assigned grade/marks based on parameters with appropriate weightage. Suggested parameters for overall assessment as well as each lab assignment assessment include- timely completion, performance, punctuality, neatness, enthusiasm, participation and contribution in various activities-SWOC analysis, presentations, team activity, event management, group discussion, group exercises and interpersonal skills and similar other activities/assignments.

Guidelines for Conduction of Soft Skills Lab

The teacher may design specific assignments that can highlight the learning outcomes of each unit. Each activity conducted in the lab should begin with a brief introduction of the topic, purpose of the activity from a professional point of view and end with the learning outcomes as feedback from students. Most of the lab sessions can be designed to be inclusive; allowing students to learn skills experientially; which will benefit them in the professional environment. Every student must be given sufficient opportunity to participate in each activity and constructive feedback from the instructor / facilitator at the end of the activity should learn towards encouraging students to work on improving their skills. Activities should be designed to respect cultural, emotional and social standing of students. Some of the activities can be designed to cater to enhancement of multiple skills – For e.g. – Team Building Activity can highlight 'open communication', 'group discussion', 'respecting perspectives', 'leadership skills', 'focus on goals' which can help students improve their inherent interpersonal skills.

At least one session should be dedicated to an interactive session that will be delivered by an expert from the industry; giving the students an exposure to professional expectations.

Virtual Laboratory

- <https://ve-lltg.vlabs.ac.in/>

Recommended List of Lab Sessions

1. Introduction of Self / SWOC Analysis – CO1, CO4

- Explain how to introduce oneself in a professional manner and presenting oneself positively Name, Academic Profile, Achievements, Career Aspirations, Personal Information (hobbies, family, social).
- Focus on introspection and become aware of one's Strengths, Weakness, Opportunities and Challenges.

Students can write down their SWOC in a matrix and the teacher can discuss the gist personally.

2. Career Goals and Planning – CO1, CO4

- Make students understand the difference between a job and a career. Elaborate steps on how to plan a career.
Students can choose a career and they should write down what skills, knowledge, steps are need

to be successful in that particular career and how they can get the right opportunity.

- a. Explain to students how to plan short term and long term goals.

Think and write down their short-term goals and long terms goals. Teacher can read and discuss (provide basic counselling) about the choices written.

3. Public Speaking – (Choose any 2) – CO3, CO2

- a. Prepared Speech

Topics will be shared with students and they will be given 10 minutes to prepare and 3 minutes to deliver followed by Q&A from audience. Teacher will evaluate each student based on content, communication skills, logical and cohesive presentation of topic, perspective of student, ability to handle questions and respond positively.

- b. Extempore Speech

Various topics will be laid out in front of the audience and each student is to pick one topic and speak about the topic for 5 minutes followed by Q&A from audience. Teacher will evaluate each student based on ability to think on his/her feet, content, communication skills, logical and cohesive presentation of topic, perspective of student, ability to handle questions and respond positively.

- c. Reviewing an Editorial article

Either using e-paper / printed copy, students have to select a recent editorial (that is non-controversial), read it and explain to the audience what the editor's perspective is and what the student's perspective is.

- d. Book Review

Each student will orally present to the audience his/her review of a book that he/she has recently read.

4. Group Discussion – CO3, CO2

- a. The class will be divided into groups of 8 – 10 students in for a discussion lasting 10 minutes.

- b. Topics should be topical and non-controversial. After each group finishes its discussion, the teacher will give critical feedback including areas of improvement. The teacher should act as a moderator / observer only

5. Listening and Reading Skills – CO2

- a. Listening Worksheets to be distributed among students

Each student will be given specifically designed worksheets that contain blanks / matching / MCQs that are designed to an audio (chosen by the faculty). Students have to listen to the audio (only once) and complete the worksheet as the audio plays. This will help reiterate active listening as well as deriving information (listening to information between the lines)

- b. Reading Comprehension Worksheets to be distributed/displayed to students

Teacher will choose reading passages from non-technical domains, design worksheets with questions for students to answer. This will enhance student's reading skills by learning how to skim and scan for information.

6. Writing Skills (Choose any 2) – CO2

- a. Letter / Email Writing

After explaining to the students the highlights of effective writing, students can be asked to write (using digital platforms / paper-based) letter to an organization with the following subject matter,

- i. Requesting opportunity to present his/her product.
- ii. Complaining about a faulty product / service.

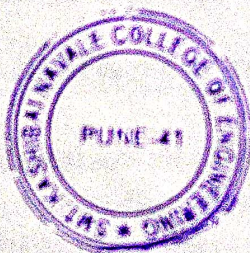


11. Presentation Skills – CO2, CO3

Every student will have to choose a topic of his/her choice and make a 5-minute presentation using audio-video aids / PPT. The topic can either be technical or non-technical. Focus and evaluation of each presentation should be the depth of knowledge about the topic, originality of perspective on the topic, well-researched or not, verbal and non-verbal skills and ability to answer questions effectively. Plagiarism should be discredit and students should be instructed about it.

12. Corporate and Business Etiquette – CO4, CO1

The teacher can design an interactive session that allows students to be involved in understanding the requirements of a corporate environment. This can be done using innovative quiz competition in the classroom and the teacher explaining the concept / relevance of that particular aspect in the professional context. Alternatively, the teacher can invite professionals to have an interactive session with students about various aspects of professional etiquette.



Department of Information Technology
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Savitribai Phule Pune University, Pune
Second Year Information Technology (2019 Course)

214450 (A) : Mandatory Audit Course 3:

Ethics and Values in Information Technology

Teaching Scheme:	Credit Scheme:	Examination Scheme:
01hrs/week	Non Credit	Audit Course

Prerequisite Courses, if any:--

Course Objectives:

1. To understand and implement the values and principles in the field of Information Technology.
2. To nurture honest and responsible professionals in Information Technology.
3. To develop student's understanding about social/ professional ethical issues related to Information Technology.
4. To inculcate professional ethics in the field of IT.

Course Outcomes:

On completion of this course students will be able to-

- CO1:** Adapt the global ethical principles and modern ethical issues.
CO2: Apprehend ethics in the business relationships and practices of IT.
CO3: Implement trustworthy computing to manage risk and security vulnerabilities.
CO4: Analyse concerns of privacy, privacy rights in information-gathering practices in IT.

COURSE CONTENTS

Unit -I	An Overview of Ethics	03hrs
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An overview of Ethics: Brief about ethics, Ethics in the Business World, Ethics in IT.

Ethics for IT professionals and IT users: IT professionals: Changing Professional Services, Professional Relationships, Codes of Ethics, awareness of IT malpractices, IT Users: Common Ethical Issues for IT Users, Supporting the Ethical Practices of IT Users.

Mapping of Course Outcomes for Unit I	CO1, CO2
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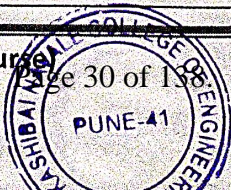
Unit- II	Computer And Internet Crime	03hrs
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Introduction: IT security incidents, Types of Exploits, Types of Perpetrators, Laws for Prosecuting Computer Attacks, Implementing Trustworthy Computing, Risk and Vulnerability Assessment, Educating Employees, Contractors, and Part-Time Workers, Establishing a Security Policy

Privacy: The right of Privacy, Privacy Protection and the Law, Key Privacy and Anonymity Issues Identity Theft, Consumer Profiling, Treating Consumer Data Responsibility, Workplace Monitoring

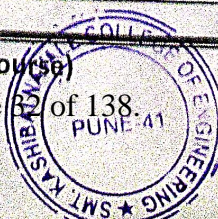
Freedom of Expression: Defamation and Hate Speech, Key issues, Controlling Access to Information on the Internet, Anonymity on the Internet, Corporate Blogging, Pornography

Mapping of Course Outcomes for Unit II	CO3, CO4
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Unit- III	Social Networking & Ethics of IT Organization	03 hrs
Social Networking: Brief about Social Networking, Social Networking Ethical Issues: Cyber bullying, Cyber stalking, Encounters with Sexual Predators, Uploading of Inappropriate Material, Online Virtual Worlds: Crime in Virtual Worlds, Educational and Business Uses of Virtual Worlds. Ethics of IT Organization: Key Ethical Issues for Organizations, of Workers, Outsourcing, Whistle-blowing, Code of Ethics and Professional Conduct.		
Mapping of Course Outcomes for Unit III	CO2, CO3, CO4	
Unit - IV	Case Study	03hrs
Malware, Medical Implants, Abusive Workplace Behaviour, Automated Active Response Weaponry, Malicious Inputs to Content Filters.		
Mapping of Course Outcomes for Unit IV	CO1, CO2, CO3, CO4	
Text Books:		
1. George Reynolds, "Ethics in Information Technology", Cengage learning, 5th Edition 2. R. Subramanian, "Professional Ethics", OXFORD University Press, Second Edition		
Reference Books:		
1. William Lillie, "An Introduction to Ethics", Allied Publishers 2. Charles b. Fleddermann, "Engineering Ethics", Prentice Hall 3. M.Govindarajan, S.Natarajan & V.S.Senthilkumar, "Engineering Ethics & Human Values", PHI Learning 4. "ACM Code of Ethics and Professional Conduct Case Studies" https://www.acm.org/code-of-ethics/case-studies 5. "Case Studies of Ethics", https://flylib.com/books/en/4.269.1.115/1/ 6. "UNODC Case Studies" https://www.unodc.org/e4j/en/integrity-ethics/module-12/exercises/case-studies.html		
Evaluation :		
Students should select any one of the topic in a group of 3 to 5. Students should submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics defined by him/her/them at start of course.		

Savitribai Phule Pune University, Pune Second Year Information Technology (2019 Course) 214459 (A) : Mandatory Audit course 4: Water Supply and Management		
Teaching Scheme:	Credit Scheme:	Examination Scheme:
01hrs/week	Non Credit	Audit Course
Prerequisite Courses: Basic knowledge of environmental science and mathematics		
Course Objectives: <ol style="list-style-type: none"> 1. Enable the student to understand the various components of environment in and around the earth crust and understand the effects of it over plants, animals, etc 2. Understand the important concepts of good water supply system to a city/town or a village 3. Understand the need of conservation of rain water and its applications 4. Understand the sources, effects, prevention and control measures of water pollution and its legislative aspects. 		
Course Outcomes: On completion of the course, learner will be able to -- CO1: Relate the relations between the environment and ecology, estimating water requirement for public water supply scheme. CO2: Assess the quality of water as per BIS and select the appropriate treatment method required for the water source. CO3: Analyze the suitable distribution system for a locality and know the appurtenances used. CO4: Summarize the arrangement of water supply and fittings in a building. CO5: Determine the need of conservation of water and rural water supply. CO6: Identify the sources of water pollution and suitable control measures.		
COURSE CONTENTS		
Unit I	Introduction To Environment, Water Requirement And Water Sources	02 hrs
ENVIRONMENT AND ECOLOGY: Atmosphere, Lithosphere, Hydrosphere, Biosphere. Relation between Plant, Animals and Environment. Eco System, Man and Ecology. WATER REQUIREMENT: Necessity of water supply, Methods of population forecasting (Arithmetical, Geometrical and Incremental Increase method), Water Requirements for a) Domestic Purpose b) Industrial Use c) Fire Fighting d) Public Purpose e) Losses. Per Capita Demand and Factors affecting it. Total Quantity of Water Required for a Town. SOURCES OF WATER: Surface Sources - Lakes, Streams, Rivers. Impounded Reservoirs. Underground Sources - Infiltration Galleries, Infiltration Wells and Springs		
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Quality And Treatment Of Water	02 hrs
QUALITY OF WATER: Impurities of water - organic and inorganic classification and examination of water. Physical - temperature, color, turbidity, taste and odour. Chemical - pH Value, Total Solids, Hardness, Chlorides, Iron and Manganese, Fluoride and Dissolved Oxygen. Bacteriological- E-coli, Most Probable Number (MPN), Quality Standards for Domestic purpose as per BIS.		



TREATMENT OF WATER: Flow diagram of different units of treatment, brief description of constructional details, working and operation of the following units - plain sedimentation, sedimentation with coagulation, flocculation, filtration-Slow sand filters, Rapid sand filters and pressure filters (nodesign) Disinfection of water, Chlorination

Mapping of Course
Outcomes for Unit II

CO2

Unit III

Water Distribution System

02 hrs

DISTRIBUTION SYSTEM: General Requirements, Systems of Distribution- Gravity System, Combined System, Direct Pumping. Maintenance of required pressure in Distribution Systems. Storage- Underground, Ground Level And Overhead Service Reservoirs- Sketch, Necessity and Accessories. Types of lay-out : dead end, grid iron, radial and ring systems, their merits and demerits and their suitability

APPURTENANCES IN DISTRIBUTION SYSTEM: Use of Sluice Valves, Check Valves, Air Valves, Scour Valves, Zero Velocity Valves, Fire Hydrants, Water Meter

Mapping of Course
Outcomes for Unit III

CO3

Unit IV

Water Supply In Buildings

02 hrs

Water Supply arrangement In Buildings: General lay-out of water supply arrangement for single and multi-storied buildings as per B.I.S code of practice. Pipe Materials- Plastic Pipes, High Density Polythene Pipes, Densified cast iron pipes, Merits and Demerits. Connections from water main to buildings. Water supply fittings - their description and uses, water main, service pipes, supply pipe, distribution pipe, domestic storage tank, stop cock, ferrule, goose neck, water tap, Modern systems of Potable water purification- (RO, UV, Activated carbon), Hot water supply - electric and solar water heaters.

Mapping of Course
Outcomes for Unit IV

CO4

Unit V

Water Conservation

02hrs

WATER CONSERVATION: Conservation of rain water, roof water harvesting, recharging of ground water. **RURAL WATER SUPPLY:** Rural water supply systems, Disinfection of well water.

Case Studies:

Refer suggested list of Case studies/ Students activities

Mapping of Course
Outcomes for Unit V

CO5

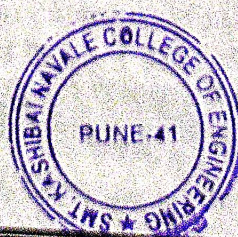
Unit VI

Water Pollution And Pollution control

02 hrs

WATER POLLUTION AND CONTROL: Sources of water pollution, types and its effects, Prevention and control measures of water pollution, Legal aspects regarding water pollution control.

Mapping of Course Outcomes for Unit V	CO6
Reference Books :	
<ol style="list-style-type: none"> 1. S.K.Garg, Water Supply Engineering Vol-I, Khanna Publishers 2. G.S.Birdie, Water Supply & Sanitary Engineering-including Environmental Engineering, water And air pollution and Ecology, Dhanpat RalandSons publishers, ISBN:81-87433-31-0 3. Dr. P.N. Modi, Environmental Engg.-Vol-I, Standard BookHouse 4. A.K.Chatterji, WaterSupply, WasteDisposalandEnvironmentalPollution Engineering, Khanna publishers 	
SUGGESTED LIST OF CASE STUDIES/STUDENTACTIVITIES	
<ol style="list-style-type: none"> 1. Collect the information about biotic and a biotic component of surrounding environment and frame relation among them 2. Estimatethetotalquantityofwaterrequiredforatown/locality/Institute 3. Prepare map and written report for surface and underground sources of water in the neighborhood 4. Visit nearby Certified Water testing laboratories and identify various tests conducted on water 5. Visit Water Treatment Plant and collect details of unit operations and processes involved in it. 6. Study the distribution system of water supply of your locality 7. Visit a newly constructed building and study plumbing work 8. Study a rooftop rain water harvesting system of existing building 9. Study a Solar water heating system and collect necessary data 10. Collect a necessary data/information about issues related to water pollution and Prepare report/presentation 	
Evaluation:	
<p>Students should select any one of the above topic in a group of 3 to 5. Students should submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics defined by him/her/them at start of course.</p>	



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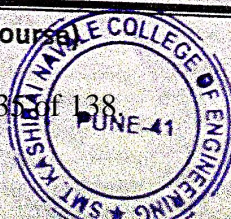
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Savitribai Phule Pune University, Pune
Second Year Information Technology (2019 Course)

214459 (C): Mandatory Audit course 4 :

e-Waste Management and Pollution Control

Teaching Scheme:	Credit Scheme:	Examination Scheme:
01hrs/week	Non Credit course	Audit Course
Prerequisite Courses: if any: --		
Course Objectives :		
<ol style="list-style-type: none"> 1. To make the students aware about importance of environmental study. 2. To study impact of professional engineering products in societal contexts. 3. To understand impact of professional engineering products in environmental contexts. 4. To learn e-waste management and e-waste recycling process. 5. To understand causes, effects and control measures of environment pollutions. 6. To learn impact of environment controlling methods on human health. 		
Course Outcomes :		
On completion of the course, learner will be able to --		
CO1: Discuss various types of e-waste sources.		
CO2: Understand impact of various e-wastes.		
CO3: Identify characteristics of various e-Waste pollutants.		
CO4: Understand process of e-Waste Recycling and relevant technologies.		
CO5: Discuss causes, effects and control measures of different environment pollution.		
CO6: Demonstrate Safe methods for disposal of e-waste and controlling the pollution.		
COURSE CONTENTS		
Unit I	E-Waste Overview and Sources	02 hrs
e-waste Overview: What is e-waste, E-waste growth- An overview, hazards of e-waste Sources of e-wastes: Discarded computers, televisions. VCRs. stereos, copiers, fax machines, electric lamps, cell phones, audio equipment and batteries if improperly disposed.		
Mapping of Course Outcomes for Unit I	CO1	
Unit II	Impact of various e-wastes	02 hrs
Solder in printed circuit boards, glass panels and monitors, Chip resistors and semiconductors, Relays and switches, Printed Circuit Boards, Cabling and computer housing, Plastic housing of electronic equipment and circuit boards, Front panel of CRTs, Motherboards.		
Mapping of Course Outcomes for Unit II	CO2	
Unit III	E- Waste pollutants and Characteristics	02 hrs
Digital dump yard, how to minimize e-waste, Hazardous substances waste Electrical and Electronic Equipment, characteristics of pollutants, batteries, electrical and electronic		



components, plastic and flame retardants, circuit boards, pollutants in waste electrical and electronic equipment.		
Mapping of Course Outcomes for Unit III	CO3	
Unit IV	E-Waste Recycling	02 hrs
Overview of e-Waste recycling, Technologies for recovery of resources from electronic waste, resource recovery potential of e-waste, steps in recycling and recovery of materials-mechanical processing, technologies for recovery of materials		
Mapping of Course Outcomes for Unit IV	CO4	
Unit V	Environmental Pollution	02 hrs
Causes and effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards, Role of an individual in prevention of pollution, Pollution case studies: Pollution caused because of electronic waste material and measures for controlling.		
Mapping of Course Outcomes for Unit V	CO5	
Unit VI	Impact on human health and Pollution Controlling	02 hrs
Impact of products from e-waste in human health, Current disposal methods of e-waste, e-waste recycling technologies and methods recycling pose a risk to environmental and human health. Safe methods for disposal of e-waste and controlling relevant pollution.		
Mapping of Course Outcomes for Unit VI	CO6	
E-Resources from Learning Support		
1. https://nptel.ac.in/courses/105/105/105105169/		
2. https://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf		
Text Books		
1. E-Waste Managing the Digital Dump Yard, Edited by Vishakha Munshi,ICFAI University Press,2007.		
2. Text Book of Environmental Studies for undergraduate Courses by Bharucha Erach,University Press, II- Edition 2013 Available online free edition.		
Reference Books		
1. E-waste: Implications, Regulations and Management in India and Current Global Best Practices, Edited by Rakesh Johri, The Energy and Resources Institute, New Delhi,2008		
Evaluation:		
Students should select any one of the above topic in a group of 3 to 5. Students should submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics defined by him/her/them at start of course.		

Savitribai Phule Pune University, Pune
Second Year Information Technology (2019 Course)

214459 (D): Mandatory Audit course 4 :

Intellectual Property Rights

Teaching Scheme:	Credit Scheme:	Examination Scheme:
01hrs/week	Non Credit	Audit Course

Prerequisite Courses, if any: ---

Course Objectives

1. To introduce fundamental aspects of Intellectual property Rights (IPR)
2. To disseminate knowledge about types of IP like Patents, Copyrights, Trade Secrets
3. To make students aware about current trends in IPR and their importance
4. To motivate students for innovative thinking and making inventions

Course Outcomes

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

CO1: Exhibit the concepts of Intellectual Property Rights

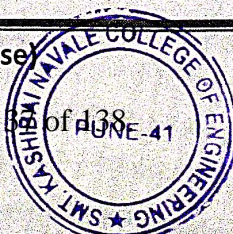
CO2: Differentiate among different IPR

CO3: Formulate and characterize innovative ideas and inventions into IPR

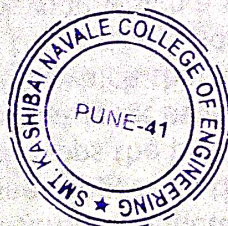
CO4: Demonstrate knowledge of advances in patent law and IP regulations

COURSE CONTENTS

Unit I	Overview Of Intellectual Property	02 hrs
Introduction and the need for intellectual property right (IPR) - Types of Intellectual Property Rights: Patent, Copyright, Trade Mark, Design, Geographical Indication, Plant Varieties and Layout Design – Genetic Resources and Traditional Knowledge – Trade Secret.		
Mapping of Course Outcomes for Unit I	CO1, CO2	
Unit II	Patents	04 hrs
What is invention? Patentability criteria: Novelty, Non-Obviousness (Inventive Steps), Industrial Application, Non- Patentable Subject Matter, Patent Search, Patent Registration Procedure, Rights and Duties of Patentee, Assignment and license, Infringement.		
Mapping of Course Outcomes for Unit II	CO3, CO4	
Unit III	Copyrights	02 hrs
Concept of Copyright –Copyright Subject matter: original literary, dramatic, musical, artistic works; cinematograph films and sound recordings - Registration Procedure, Term of protection, Ownership of copyright, Assignment and license of copyright - Infringement		
Mapping of Course Outcomes for Unit III	CO3	



Unit IV	Trademarks	02 hrs
Nature of Trademarks - Different kinds of trademarks (, logos, signatures, symbols, well known marks, brand names, certification and service marks) – Trademarks that can't be registered– Trademarks registration procedure - Rights of holder and assignment and licensing of marks - Infringement		
Mapping of Course Outcomes for Unit IV	CO3	
Unit V	Advances in IP Laws and Government policies	02 hrs
Amendments and India's New National IP Policy, Promoting IPR policy for Start-ups, Career Opportunities in IP - IPR in current scenario		
Mapping of Course Outcomes for Unit V	CO4	
Text Books		
1. Niraja Pandey, Khush deep Dharni (2014), "Intellectual Property Rights", PHI 2. Nithyananda K V. (2019). Intellectual Property Rights: Protection and Management. India, IN: Cengage Learning India Private Limited		
Reference Books		
1. Mishra, "An introduction to Intellectual property Rights", Central Law Publications 2. Ahuja, V K. (2017). Law relating to Intellectual Property Rights. India, IN: Lexis Nexis		
Evaluation:		
Students should select any one of the above topic in a group of 3 to 5. Students should submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics defined by him/her/them at start of course.		



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Savitribai Phule Pune University, Pune
Second Year Information Technology (2019 Course)

214458: Project Based Learning

Home

Teaching Scheme:	Credit Scheme:	Examination Scheme:
Practical (PR): 04hrs/week	02	TW : 50 Marks

Prerequisite Courses, if any:

Preamble:

Project Based Learning (PBL) is an instructional approach that emphasizes critical-thinking, collaboration and personalized learning. In PBL, student groups engage in meaningful inquiry that is of personal interest to them. These projects are based on problems, which are real-life oriented, curriculum-based and often interdisciplinary. Students decide how to approach a problem and what activities or processes they will perform. They collect information from a variety of sources, analyze, synthesize and derive understanding from it. The real-world focus of PBL activities is central to the process because it motivates students and adds value to their work. Their learning is connected to something real and involves life skills such as collaboration and reflection. The faculty assigned to the group is referred as mentor. Technology enables students and Mentor in various phases of the PBL process. At the end of the PBL, students demonstrate their newly acquired knowledge and are evaluated by how much they have learned and how well they communicate it. Students also conduct self-evaluation to assess their own growth and learning. Throughout this process, the mentor's role is to guide and advise students, rather than to direct and manage student work.

Companion Course: Online courses relevant to the project, along with expert lecture on Intellectual property rights, patents and software engineering.

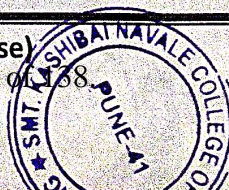
Course Objectives :

1. To learn the various processes involved in project based learning.
2. To develop critical thinking and engineering problem solving skills amongst the students.
3. To explain the roles and responsibilities of IT engineers to the solution of engineering problems within the social, environmental and economic context.
4. To equip the students with knowledge and skills require to develop solutions for the problems coming from various Hackathon.

Course Outcomes

On completion of the course, student will be able to --

- CO1:** Design solution to real life problems and analyze its concerns through shared cognition.
CO2: Apply learning by doing approach in PBL to promote lifelong learning.
CO3: Tackle technical challenges for solving real world problems with team efforts.
CO4: Collaborate and engage in multi-disciplinary learning environments.



Savitribai Phule Pune University, Pune
Second Year Information Technology (2019 Course)

214458: Project Based Learning

Teaching Scheme:	Credit Scheme:	Examination Scheme:
Practical (PR): 04hrs/week	02	TW : 50 Marks

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COURSE CONTENTS

Group Structure

Group structure should enable students to work in mentor-monitored groups. The students plan, manage and complete a task/project / activity which addresses the stated problem.

1. There should be a team of 3 to 6 students who will work cohesively.
2. A Mentor should be assigned to individual groups who will help them with learning and development process.

Selection of Project/Problem

1. The project scope/topic can be from any field/area, but selection related to IT technical aspect is desirable.
2. The project/problem done in first year engineering could be extended further, based on its potential and significance analysis.
3. Project/problem requiring solutions through conceptual model development and use of software tools should be preferred.
4. Different alternate approaches such as theoretical, practical, working model, demonstration or software analysis should be used in solving/implementing of project/problem.
5. The project/problem requiring multi-disciplinary approach to solve it, should be preferred.
6. Problem may require in depth study of specific practical, scientific or technical domain.
7. Hands-on activities, organizational and field visits, interacting with research institutes and expert consultation should be included in the approach to make students aware of latest technologies.

Assessment

The department should be committed to assess and evaluate both student performance and solution impact.

Progress of PBL will be monitored regularly on weekly basis. Weekly review of the work is necessary. During process of monitoring and continuous assessment and evaluation the individual and team performance is to be measured by mentor.

Students must maintain an institutional culture of authentic collaboration, self-motivation, peer-learning and personal responsiveness. The institution/department should support students in this regard through guidance/orientation programs and the provision of appropriate resources and services. Supervisor/mentor and students must actively participate in assessment and evaluation processes. Group may demonstrate their knowledge and skills by developing a public product and/or report and/or presentation.

1. Individual assessment for each student (Understanding individual capacity, role and involvement in the project).
2. Group assessment (roles defined, distribution of work, Intra-team communication and togetherness).
3. Documentation and presentation.

Evaluation and Continuous Assessment

It is recommended that the all activities are to be recorded in PBL workbook, regular assessment of work to be done and proper documents are to be maintained at college end by both students as well as mentor.

The PBL workbook will reflect accountability, punctuality, technical writing ability and work flow of the task undertaken. Continuous Assessment Sheet (CAS) is to be maintained by all mentors/department.

Recommended parameters for assessment, evaluation and weightage:

1. Idea Inception (5%)
 2. Outcomes of PBL/Problem Solving Skills/Solution provided/Final product(40%) (Individual assessment and team assessment)
 3. Documentation (Gathering requirements, design & modeling, implementation/execution, use of technology and final report, other documents (25 %)
 4. Potential for the patent(10%)
 5. Demonstration (Presentation, User Interface, Usability etc.) (10%)
 6. Contest Participation/ publication (5%)
 7. Awareness /Consideration of Environment/ Social /Ethics/ Safety measures/Legal aspects (5%).
- Design the rubrics based on the above parameters for evaluation of student performance

Faculty / Mentor is expected to perform following activities

Faculty/ Mentor is expected to perform following activities:

Revision of PBL concepts

Skill assessment of students

Formation of diversified and balanced groups

Share information about patent, copyright and publications to make students aware about it

Discussion of sample case studies

Design of the rubrics for evaluation of student performance

Discussion of the rubrics with students

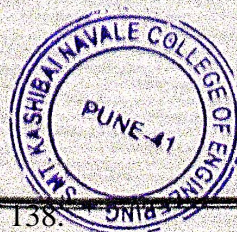
Weekly Assessment of the deliverables such as Presentation, Report, Concept map, logbook

Scaffolding of the students

Summative and Formative assessment

Reference Books:

1. Project-Based Learning, Edutopia, March 14,2016.
2. What is PBL? Buck Institute for Education.
3. www.schoolology.com
4. www.wikipedia.org
5. www.howstuffworks.com



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Curriculum for Third Year of Information Technology (2019 Course), Savitribai Phule Pune University

Savitribai Phule Pune University														
Third Year of Information Technology (2019 course)														
(With effect from Academic Year 2021-22)														
Semester-V														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Theory	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
314441	Theory of Computation	03	-	-	30	70	-	-	-	100	3	-	-	3
314442	Operating Systems	03	-	-	30	70	-	-	-	100	3	-	-	3
314443	Machine Learning	03	-	-	30	70	-	-	-	100	3	-	-	3
314444	Human Computer Interaction	03	-	-	30	70	-	-	-	100	3	-	-	3
314445	Elective-I	03	-	-	30	70	-	-	-	100	3	-	-	3
314446	Operating Systems Lab	-	04	-	-	-	25	25	-	50	-	2	-	2
314447	Human Computer Interaction- Lab	-	02	-	-	-	-	-	50	50	-	1	-	1
314448	Laboratory Practice-I	-	04	-	-	-	25	25	-	50	-	2	-	2
314449	Seminar	-	01	-	-	-	50	-	-	50	-	1	-	1
314450	Audit Course 5	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Credit											15	06	-	21
Total		15	11	-	150	350	100	50	50	700	15	06	-	21

Abbreviations: TH: Theory, TW: Term Work, PR: Practical, OR: Oral, TUT: Tutorial

Elective-I:

314445A- Design and Analysis of Algorithm
 314445B- Advanced Database and Management System
 314445C- Design Thinking
 314445D- Internet of Things

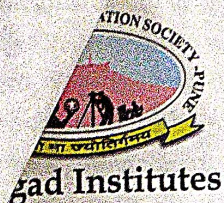
Laboratory Practice-I:

Assignment from Machine Learning and Elective I

Note: Students of T.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)

Audit Course 5:

314450A-Banking and Insurance
 314450B-Startup Ecosystems
 314450C- Foreign Language-(Japanese Language- III)



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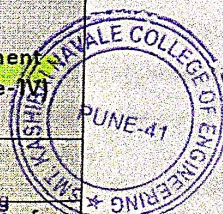
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Curriculum for Third Year of Information Technology (2019 Course), Savitribai Phule Pune University

Savitribai Phule Pune University														
Third Year of Information Technology (2019 Course)														
(With effect from Academic Year 2021-22)														
Semester-VI														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term Work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
314451	Computer Networks& Security	03	-	-	30	70	-	-	-	100	03			03
314452	Data Science and Big Data Analytics	03	-	-	30	70	-	-	-	100	03			03
314453	Web Application Development	03	-	-	30	70	-	-	-	100	03			03
314454	Elective-II	03	-	-	30	70	-	-	-	100	03			03
314455	Internship	-	04	-	-	-	100	-	-	100		04		04
314456	Computer Networks& Security-Lab	-	04	-	-	-	25	-	50	75		02		02
314457	DS & BDA-Lab	-	02	-	-	-	25	25	-	50		01		01
314458	Laboratory Practice-II	-	04	-	-	-	50	25	-	75		02		02
314459	Audit Course 6	-	-	-	-	-	-	-	-	-	-	-	-	-
Total											12	09	-	21
Total		12	14	-	120	280	200	50	50	700	12	09	-	21
Abbreviations: TH: Theory, TW: Term Work, PR: Practical , OR: Oral, TUT: Tutorial														
Elective-II:					Audit Course 6:									
314454A- Artificial Intelligence					314459A - Green and Unconventional Energy									
314454B- Cyber Security					314459B - Leadership and Personality Development									
314454C -Cloud Computing					314459C- Foreign Language - (Japanese Language - IV)									
314454D- Software Modeling and Design														
Laboratory Practice-II:														
Assignments from Web Application Development and Elective-I & II														
Note: Students of T.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)														



Savitribai Phule Pune University, Pune
Third Year Information Technology (2019 Course)
314454 (B): Elective-II (Cyber Security)

Teaching Scheme:	Credit Scheme:	Examination Scheme:
Theory (TH): 3 hrs/week	03 Credit	Mid_Semester: 30 Marks End_Semester: 70 Marks

HOME

Prerequisite Courses: if Any

Companion Course:

1. Computer Networks & Security

Course Objectives:

1. To learn fundamental concepts of cyber security
2. To learn different types of threats and cyber-crimes.
3. To understand the basics cyber forensics, network forensics, Email forensics, web forensics and crypto currency forensics.
4. To understand the basic digital forensics concepts and techniques for conducting the forensic examination on different digital devices.
5. To analyze how particular social engineering attacks take advantage of specific features of the Internet and of human nature.
6. To learn the IT laws and cyber-crime basics.

Course Outcomes:

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

CO1: Develop basic understanding of cyber security.

CO2: Differentiate among different types of cyber threats and cyber-crimes.

CO3: Illustrate cyber forensic techniques to identify the criminal activities.

CO4: Apply forensic analysis tools to recover important evidence for identifying computer crime

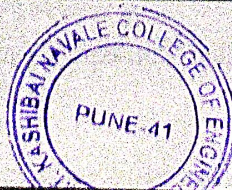
CO5: Distinguish and classify the forms of cybercriminal activity and the technological and social engineering methods used to undertake such crimes

CO6: Evaluate the effectiveness of cyber-security, cyber-laws and other countermeasures against cybercrime

COURSE CONTENTS

Unit I	INTRODUCTION TO CYBER SECURITY	(06 hrs.)
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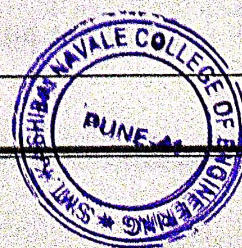
Introduction: Introduction to Cyber Security, Need, Importance and challenges in Cyber Security, Cyberspace, Cyber threats, Cyber-warfare, CIA Triad, Cyber Terrorism, Cyber Security of Critical Infrastructure, Cyber security - Organizational Implications.



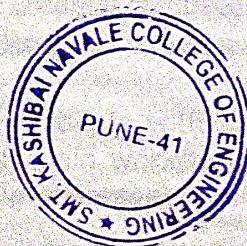
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Mapping of Course Outcomes for Unit I	CO1	
Unit II	CYBER CRIMES AND HACKING	(06 hrs)
<p>Overview of Cyber-Attacks and Vulnerabilities, Types of Threats – Malware, spyware, Sniffing, Gaining Access, Escalating Privileges, Executing Applications, Hiding Files, Covering Tracks, Worms, Trojans, Viruses, Backdoors. Types of Cyber Crime - cyber stalking, forgery, software piracy, cyber terrorism, phishing, computer vandalism, computer hacking, creating and distributing viruses over Internet, spamming, cross site scripting, online auction fraud, cyber-squatting, logic bombs, web jacking, internet time thefts, DoS attack, salami attack, data diddling, email spoofing. Types of Hacker Hacking and Cracking, Hacking: Ethical Issues, Ethical Hacking.</p>		
Mapping of Course Outcomes for Unit II	CO2	
Unit III	CYBER FORENSICS	(06 hrs)
<p>Introduction to Cyber Forensics: What are cyber forensics, cyber forensics investigation process, digital evidence, challenges in cyber forensics; Web Attack Forensics: Intrusion forensics, database forensics, preventive forensics; Anti- forensics practices, Anti-forensics detection techniques, Network forensics analysis tools; Malware Forensics: Malware types, Malware Analysis, Tools for analysis; Email Forensics: e-mail Protocols, e-mail crimes, email forensics; Bitcoin Forensics: crypto currency, crimes related to bitcoin; Case Study: A detailed case study on cyber forensics and its Investigation Reports.</p>		
Mapping of Course Outcomes for Unit III	CO3	
Unit IV	DIGITAL FORENSICS	(06 hrs)
<p>Introduction to Digital Forensics, Cyber Forensics vs Digital Forensics, the role of digital forensics and its environment, Forensic Software and Hardware, properties of digital evidence, recovering and preserving digital evidence, Advanced forensic Tools, selecting and analyzing digital evidence, validating the evidence, Forensic Technology and Practices, Forensic Ballistics and Photography, Face, Iris and Fingerprint Recognition, Audio Video Analysis Case Study: A detailed case study on Digital Forensics</p>		
Mapping of Course Outcomes for Unit IV	CO3, CO4	
Unit V	SOCIAL ENGINEERING	(06 hrs)
<p>Introduction of social engineering and cyber security, social engineering conceptual evolution, defining social engineering-categories, Phases, attack spiral model, Attack Vendors-social approach, socio-technical approach. Advanced social engineering attack, Phishing Attack, Insider Attack, Identity Theft, Preventing Insider Threats, Social Engineering Targets and Defense Strategies. Case Study: Phishing and Identity Theft Online Scams</p>		



Mapping of Course Outcomes for Unit V	CO5
Unit VI	CYBER ETHICS AND LAWS (06 hrs.)
Introduction to Cyber Laws, E-Commerce and E-Governance, Certifying Authority and Controller, Offences under IT Act, Computer Offences and its penalty under ISO 27001, IT Act 2000, Positive Aspects and weak areas of ITA 2000, Digital signatures and the Indian ITA act, ITA 2008, and International Standards maintained for Cyber Security, Security Audit, Investigation by Investing Agency, Intellectual Property Rights in Cyberspace.	
Mapping of Course Outcomes for Unit VI	CO6
Text Books:	
<ol style="list-style-type: none"> 1. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole and Sunil Belapure, Wiley INDIA. ISBN 978-81-265-2179-1 2. Practical Cyber Forensics an Incident-Based Approach to Forensic Investigations, Niranjan Reddy, Apress, ISBN-13: 978-1-4842-4459-3 3. Practical Digital forensics – Richard Boddington, PACKT Publishing ISBN 978-1-78588-710-9 	
Reference Books:	
<ol style="list-style-type: none"> 1. William Stallings, Computer Security: Principles and Practices, Pearson 6th Ed, ISBN: 978-0-13-335469-0 2. Bernard Menezes, Network Security and Cryptography, Cengage Learning, ISBN-978-81-315-1349-1 3. Dr. V.K. Pachghare, Cryptography and Information security, PHI, Second edition, ISBN-978-81-203-5082-3 	
E- Books / E- Learning References:	
<ol style="list-style-type: none"> 1. Z. Wang, L. Sun and H. Zhu, "Defining Social Engineering in Cyber security," in IEEE Access, vol.8, pp. 85094-85115, 2020, Doi: 10.1109/ACCESS.2020.2992807. 2. Eoghan Casey, "Digital Evidence and Computer Crime: Forensic Science, Computers, and the Internet", ELSVIER, May 2011, ISBN 978-0-12-374268-1 	



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Savitribai Phule Pune University, Pune
Third Year Information Technology (2019 Course)

314455: Internship

Teaching Scheme:	Credit Scheme:	Examination Scheme:
Theory (TH) : 4 hrs/week	04 Credit	Team work: 100 Marks
Prerequisite Courses: if Any		

HOME

Course Objectives:

- To encourage and provide opportunities for students to get professional/personal experience through internships.
- To learn and apply the technical knowledge gained from academics /classroom learning in real life/industrial situations.
- To get familiar with various tools and technologies used in industries and their applications.
- To enable students to develop professional skills and expand their professional network with the development of employer-valued skills like teamwork, communication.
- To apply the experience gained from industrial internship to the academic course completion project.
- To nurture professional and societal ethics in students
- Understand the social, economic and administrative considerations that influence the working environment of industrial organizations

Course Outcomes:

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

CO1: Develop professional competence through industry internship.

CO2: Apply academic knowledge in a personal and professional environment

CO3: Build the professional network and expose students to future employees.

CO4: Apply professional and societal ethics in their day-to-day life.

CO5: Become a responsible professional having social, economic and administrative considerations.

CO6: Make own career goals and personal aspirations.

Guidelines:

Internships are educational and career development opportunities, providing practical experience in a field or discipline. Internships are far more important as the employers are looking for employees who are properly skilled and having awareness about industry environment, practices and culture. Internship is structured, short- term, supervised training often focused around particular tasks or projects with defined time scales.

Core objective is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.

Engineering internships are intended to provide students with an opportunity to apply theoretical knowledge from academics to the realities of the field work/training. The following guidelines are proposed to give academic credit for the internship undergone as a part of the Third Year Engineering curriculum.

Duration:

Internship to be completed after semester 5 and before commencement of semester 6 of at least 4 to 6 weeks; and it is to be assessed and evaluated in semester 6.

Internship work Identification:

Student may choose to undergo Internship at Industry/Govt./NGO/MSME/Rural Internship/Innovation/IPR/Entrepreneurship. Student may choose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internship with industry/NGO's/Government organizations/Micro/Small/ Medium enterprises to make themselves ready for the industry.

Contacting various companies for Internship and Internship work identification process should be initiated in the Vth semester in coordination with training and placement cell/ industry institute cell/ internship cell. This will help students to start their internship work on time. Also, it will allow students to work in vacation period after their Vth semester examination.

Student can take internship work in the form of Online/onsite work from any of the following but not limited to:

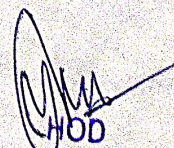
- Working for consultancy/ research project,
- Participation at Events (Technical / Business)/in innovation related completions like Hackathon,
- Contribution in Incubation/ Innovation/ Entrepreneurship Cell/ Institutional Innovation Council/ startups cells of institute /
- Learning at Departmental Lab/Tinkering Lab/ Institutional workshop,
- Development of new product/ Business Plan/ registration of start-up,
- Participation in IPR workshop/Leadership Talks/ Idea/ Design/ Innovation/ Business Completion/ Technical Expos,
- Industry / Government Organization Internship,
- Internship through Internshala,
- In-house product development, intercollegiate, inter department research internship under research lab/group, micro/small/medium enterprise/online internship,
- Research internship under professors, IISC, IIT's, Research organizations,
- NGOs or Social Internships, rural internship,
- Participate in open source development.

Internship Diary/ Internship Workbook:

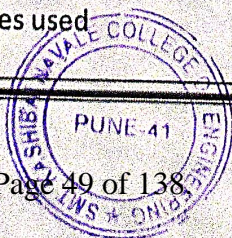
Students must maintain Internship Diary/ Internship Workbook. The main purpose of maintaining diary/workbook is to cultivate the habit of documenting. The students should record in the daily training diary the day-to-day account of the observations, impressions, information gathered and suggestions given, if any. The training diary/workbook should be signed after every day by the supervisor/ in charge of the section where the student has been working.

Internship Diary/workbook and Internship Report should be submitted by the students along with attendance record and an evaluation sheet duly signed and stamped by the industry to the Institute immediately after the completion of the training. Internship Diary/workbook may be evaluated on the basis of the following criteria:

- Proper and timely documented entries
- Adequacy & quality of information recorded
- Data recorded
- Thought process and recording techniques used
- Organization of the information


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Internship Work Evaluation:

Every student is required to prepare a maintain documentary proofs of the activities done by him as internship diary or as workbook. The evaluation of these activities will be done by Programme Head/Cell In-charge/ Project Head/ faculty mentor /faculty or Industry Supervisor based on- Overall compilation of internship activities, sub-activities, the level of achievement expected, evidence needed to assign the points and the duration for certain activities.

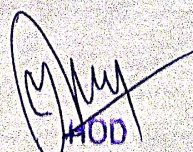
Assessment and Evaluation is to be done in consultation with internship supervisor (Internal and External – a supervisor from place of internship).

Recommended evaluation parameters-Post Internship Internal Evaluation -50 Marks +Internship Diary/Workbook and Internship Report - 50 Marks

Evaluation through Seminar Presentation/Viva-Voce at the Institute-

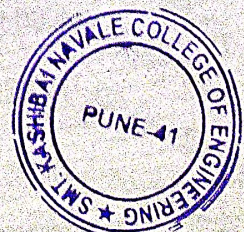
The student will give a seminar based on his training report, before an expert committee constituted by the concerned department as per norms of the institute. The evaluation will be based on the following criteria:

- Depth of knowledge and skills Communication & Presentation Skills
- Team Work
- Creativity
- Planning & Organizational skills
- Adaptability
- Analytical Skills
- Attitude & Behavior at work



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Savitribai Phule Pune University, Pune
Third Year Information Technology (2019 Course)
Mandatory Audit Course 6

314459 (B): Leadership and Personality Development

Teaching Scheme:	Credit Scheme:	Examination Scheme:
Theory (TH) :1 hrs/week Tutorial(TUT): 3 hrs/week (Assignments and Self-study)	Non Credit	Audit Course

HOME

Prerequisite Courses: if Any

Course Objectives:

1. To develop inter personal skills and be an effective goal oriented leader.
2. To develop personalities of students in order to empower them and get better insights into self-responsibilities in personal life to build better human being.
3. To develop professionals with leadership quality along with idealistic, practical and moral values.
4. To re-engineer attitude and understand its influence on behavior.
5. To help students to evolve as leaders who can effectively handle real life challenges in and across the dynamic environment.

Course Outcomes:

On completion of the course, students will be able to-

CO1: Practice responsible decision-making and personal accountability.

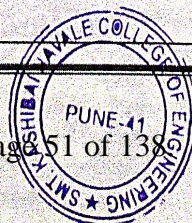
CO2: Demonstrate an understanding of group dynamics and effective teamwork.

CO3: Develop a range of leadership skills and abilities such as effectively leading change, resolving conflict, and motivating others.

CO4: Develop multi-dimensional personality.

COURSE CONTENTS

Unit I	PERSONALITY DEVELOPMENT	(03 hrs)
Laws of Personality Development, Different Layers of Personality, How to Change Our Character, Influence of Thought, Take the Whole Responsibility on Yourself, Self-analysis: Johari 's Window, Attitude: Factors influencing Attitude, Challenges and lessons from Attitude, Personality Traits, Sharpening Memory Skills, Decision-Making, Negotiation and Problem-Solving. Importance of Self Confidence, Self Esteem, Creativity: Out of box thinking, Lateral Thinking		
Mapping of Course Outcomes for Unit I	CO1	
Unit II	TECHNIQUES IN PERSONALITY DEVELOPMENT	(03 hrs)
Techniques for better Time Management, Meditation and concentration techniques, Self- hypnotism, Self-acceptance, and self-growth, Goal setting: Wish List, SMART Goals, Blueprint for success, Short Term, Long Term, Lifetime Goals. Confidence Building: Case studies, Confidence building videos of motivational speakers.		



Mapping of Course Outcomes for Unit II	CO1, CO2
Unit III	LEADERSHIP SKILLS (03 hrs)
Working individually and in a team, Levels of Leadership, Making of a leader, Types of leadership, Transactions Vs Transformational Leadership, VUCA Leaders, DART Leadership, Leadership Grid & leadership Formulation, Introduction to Interpersonal Relations, Virtual Leadership: Introduction, Essential Skills for Managing Remote Teams and challenges of virtual leadership.	
Mapping of Course Outcomes for Unit III	CO3, CO4
Unit IV	TEAM BUILDING (03 hrs)
Importance of groups in organization and Team Interactions in group, Group Vs Teams, Team formation process, Stages of Group, Group Dynamics, Managing Team Performance & Team Conflicts., How to build a good team? Teamwork & Team building Interpersonal skills, Virtual team dynamics: issues and resolutions	
Mapping of Course Outcomes for Unit IV	CO2, CO4
Reference Books:	
<ol style="list-style-type: none"> 1. Barun K. Mitra; (2011), "Personality Development & Soft Skills", First Edition; Oxford Publishers. 2E, ISBN: 780199459742, ISBN: 0199459746. 2. SKILLS, 2015, Career Development Centre, Green Pearl Publications. 3. Shallni Verma (2014); "Development of Life Skills and Professional Practice"; First Edition; Sultan Chand (G/L) & Company. ISBN: 9789325974203, ISBN: 9325974207. 4. John C. Maxwell (2014); "The 5 Levels of Leadership", Centre Street, A division of Hachette Book Group Inc, ISBN: 9789350098714, ISBN: 9350098717. 5. Basic Managerial Skills for All by E. H. McGrath, S. J., PHI Personality Development and Soft Skill, Mitra, Barun, Oxford University Press, ISBN: 9788120343146, ISBN: 812034314X. 6. Personality Development by Rajiv K. Mishra. Rupa & Co. 7. How to deal with Stress by Stephen Palmer & Cary Cooper, Kogan Page India Pvt. Ltd., South Asian Edition Successful Time Management by Patrick Forsyth, Kogan Page 8. Shiv Khera, "You Can Win", A&C Black, 2014, ISBN: 13: 9789350593783 9. Gajendra Singh Chauhan, Sangeeta Sharma: Soft Skills – An Integrated Approach to Maximize Personality, Wiley India, ISBN: 13: 9788126556397 	
E-Books/E-Learning References:	
<ol style="list-style-type: none"> 1. Developing Soft Skills and Personality: By Prof. T. Ravichandran, IIT Kanpur https://onlinecourses.nptel.ac.in/noc19_hs32/preview 2. Leadership: Prof Kalyan Chakravatti, IIT Kharagpur https://nptel.ac.in/courses/122/105/122105021/ 3. Virtual leadership https://youtu.be/SNeTzgBE93o 4. Motivation and Confidence building videos of motivational speakers like Shiv Khera, Sandeep Maheshwari, Sonu Sharma, Vivek Bindra, B.K. Shivani 	

B.E. (Information Technology) 2015 Course to be implemented from Academic Year 2018-19

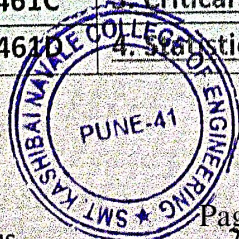
SEMESTER-I

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Practical	Tutorial	In-Sem	TW	PR	OR	End-Sem		
414453	Information and Cyber Security	3	--	--	30	--	--	--	70	100	3
414454	Machine Learning and Applications	4	--	--	30	--	--	--	70	100	4
414455	Software Design and Modeling	3	--	--	30	--	--	--	70	100	3
414456	Elective-I	3	--	--	30	--	--	--	70	100	3
414457	Elective -II	3	--	--	30	--	--	--	70	100	3
414458	Computer Laboratory-VII	--	4	--	--	50	50	--	--	100	2
414459	Computer Laboratory-VIII	--	4	--	--	50	--	50	--	100	2
414460	Project Phase-I	--	--	2	--	--	--	50	--	50	2
414461	Audit Course-V	--	--	--	--	--	--	--	--	Grade	
Total		16	8	2	150	100	50	100	350	750	22
Total of Part-I		26			750						

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester
 Computer Laboratory-VII (Information and Cyber Security+ Machine Learning and Application)
 Computer Laboratory-VIII (Software Design and Modeling)

Elective I		Elective II	
414456 A	1. Wireless Communications	414457A	1. Software Defined Networks
414456B	2. Natural Language Processing	414457B	2. Soft Computing
414456C	3. Usability Engineering	414457C	3. Software Testing and Quality Assurance
414456D	4. Multicore and Concurrent Systems	414457D	4. Compiler Construction
414456E	5. Business Analytics and Intelligence	414457E	5. Gamification

Audit Course-V	
414461A	1. Emotional Intelligence
414461B	2. Green Computing
414461C	3. Critical Thinking
414461D	4. Statistical Learning model using R.



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SEMESTER –II

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Practical	Tutorial	In-Sem	TW	PR	OR	End-Sem		
414462	<u>Distributed Computing System</u>	3	--	--	30	--	--	--	70	100	3
414463	<u>Ubiquitous Computing</u>	3	--	--	30	--	--	--	70	100	3
414464	<u>Elective-III</u>	3	2	--	30	25	--	25	70	150	4
414465	<u>Elective-IV</u>	3	--	--	30	--	--	--	70	100	3
414466	<u>Computer Laboratory-IX</u>	--	4	--	--	50	50	--	--	100	2
414467	<u>Computer Laboratory-X</u>	--	2	--	--	25	--	25	--	50	1
414468	<u>Project Work</u>	--	--	6	--	50	--	100	--	150	6
414469	<u>Audit Course-VI</u>	--	--	--	--	--	--	--	--	Grade	
Total		12	8	6	120	150	50	150	280	750	22
Total of Part-II		26				750					

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester
 Computer Laboratory-IX (Distributed Computing System)
 Computer Laboratory-X (Ubiquitous Computing)

Elective III		Elective IV	
414464A	<u>1. Internet of Things (IoT)</u>	414465A	<u>1. Rural Technologies and Community Development</u>
414464B	<u>2. Information storage and retrieval</u>	414465B	<u>2. Parallel Computing</u>
414464C	<u>3. Multimedia Techniques</u>	414465C	<u>3. Computer Vision</u>
414464D	<u>4. Internet and Web Programming</u>	414464D	<u>4. Social Media Analytics</u>
414464E	<u>5. Computational Optimization</u>	414465E	<u>5. Open Elective</u>

Audit Course-VI	
414469A	<u>1. IoT – Application in Engineering field</u>
414469B	<u>2. Entrepreneurship</u>
414469C	<u>3. Cognitive Computing</u>
414469D	<u>4. AI and Robotics</u>

Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414453: Information and Cyber Security

Teaching Scheme:
TH:03 Hours/Week

Credits: 03

Examination Scheme:

In-Sem (Paper): 30 Marks

End-Sem (paper): 70 Marks

Prerequisites:

1. Data Communication.
2. Computer Network.

Course Objectives:

1. Understand computer, network and information security.
2. To study operating system security and malwares.
3. To study security issues in internet protocols.
4. To study network defence tools.
5. To learn forensics and investigation techniques.

Course Outcomes:

By the end of the course, students should be able to

1. Use basic cryptographic techniques in application development.
2. Apply methods for authentication, access control, intrusion detection and prevention.
3. To apply the scientific method to digital forensics and perform forensic investigations.
4. To develop computer forensics awareness.
5. Ability to use computer forensics tools.

Unit I	SECURITY BASICS	7 Hrs
Information Security Concepts, Security Threats and Vulnerabilities, Security Architectures and Operational Models, Types of Security attacks, Goals of Security, Malicious code, Intrusion detection system (IDS): Need, Types, Limitations and Challenges, security and privacy.		
Unit II	SYMMETRIC AND ASYMMETRIC KEY CRYPTOGRAPHY	7Hrs
Introduction, Classical Encryption Techniques, Block Ciphers and Data Encryption standards, Advanced Encryption standard, Public Key Cryptography and RSA, Chinese Remainder Theorem, Diffie-Hellman, Elgamal Curve Arithmetic, Elliptic Curve Arithmetic, Elliptic Curve Cryptography.		
Unit III	DATA INTEGRITY ALGORITHMS AND SECURITY REQUIREMENTS	7 Hrs
Cryptographic Hash Functions, requirements and security, SHA-1, SHA-3, Digital Signatures, X.509 Certificate, Kerberos, IP Security: Architecture Protocols IPv4, IPv6, AH, IPSec, ISAKMP, Web Security: SSL, HTTPS, Mail Security: PGP, S/MIME		
Unit IV	LEGAL, ETHICAL, AND PROFESSIONAL ISSUES IN INFORMATION SECURITY, RISK MANAGEMENT	7 Hrs



Overview, Risk identification, Risk Assessment, Risk Control Strategies, Quantitative vs. Qualitative Risk Control Practices. Risk Management. Laws and Ethics in Information Security, Codes of Ethics, Protecting programs and data.

Unit V	INTRODUCTION TO CYBER LAWS	7 Hrs
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Introduction, Definition and origin, Cybercrime and Information security, Classification of Cybercrimes, The legal perspectives- Indian perspective, Global perspective, Categories of Cybercrime, Types of Attacks, a Social Engineering, Cyber stalking, Cloud Computing and Cybercrime.

Unit VI	TOOLS AND METHODS USED IN CYBERCRIME	7 Hrs
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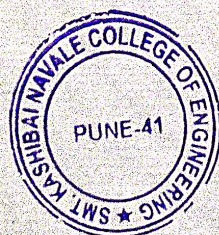
Introduction, Proxy servers and Anonymizers, Phishing, Password Cracking, Key-loggers and Spywares, Types of Virus, Worms, Dos and DDoS, SQL injection, Cybercrime and Legal perspectives, Cyber laws- Indian context, The Indian IT Act-Challenges, Amendments, Challenges to Indian Law and cybercrime Scenario in India, Indian IT Act and Digital Signatures. study of any two network security scanners: Nmap, Metasploit, OpenVAS, Aircrack, Snort, Wireshark, Nikito, Samurai, Safe 3 etc.

Text Books

1. William Stallings, Computer Security : Principles and Practices, Pearson 6th Ed, ISBN: 978-0-13-335469-0
2. Nina Godbole, Sunit Belapure , Cyber Security- Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley India Pvt.Ltd, ISBN- 978-81-265-2179-1
3. Bernard Menezes, Network Security and Cryptography, Cengage Learning , ISBN-978-81-315-1349-1
4. Dr. V.K. Pachghare, Cryptography and Information security, PHI, Second edition, ISBN- 978-81-203-5082-3

Reference Books

1. Bruce Schneier , Applied Cryptography- Protocols, Algorithms and Source code in C, Algorithms, Wiley India Pvt Ltd, 2nd Edition, ISBN 978-81-265-1368-0.
2. Nina Godbole , Information Systems Security , Wiley India Pvt. Ltd, ISBN -978-81-265-1692-6
3. CK Shyamala et al., Cryptography and Security, Wiley India Pvt. Ltd, ISBN-978-81-265-2285-9.
4. Berouz Forouzan, Cryptography and Network Security, TMH, 2 edition, ISBN -978-00-707-0208-0.
5. Mark Merkow, Information Security-Principles and Practices, Pearson Ed., ISBN- 978-81-317-1288-7.



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Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414460: Project Phase-I

Teaching Scheme: TUT:02 Hours/Week	Credits:02	Examination Scheme:
		OR:50 Marks

Prerequisites:

1. Project Based Seminar.

Course Objectives:

1. Student should be able implement their ideas/real time industrial problem/ current applications from their engineering domain.
2. Students should be able to develop plans with help of team members to achieve the project's goals.
3. Student should be able to break work down into tasks and determine appropriate procedures.
4. Student should be able to estimate and cost the human and physical resources required, and make plans to obtain the necessary resources.
5. Student should be able allocate roles with clear lines of responsibility and accountability and learn team work ethics.
6. Student should be able to apply communication skills to effectively promote ideas, goals or products.

Course Outcomes:

By the end of the course, students should be able to

1. To show preparedness to study independently in chosen domain of Information Technology and programming languages and apply their acquired knowledge to variety of real time problem scenarios.
2. To function effectively as a team to accomplish a desired goal.
3. An understanding of professional, ethical, legal, security and social issues and responsibilities related to Information Technology Project.

Contents

Project Based Seminar (PBS) helped students to gather, organize, summarize and interpret technical literature with the purpose of formulating a project proposal in third year. Students had also submitted a technical report summarizing state-of-the-art on an identified domain and topic in third year. B.E. Projects can be application oriented and/or will be based on some innovative/ theoretical work. In Project Phase-I the student will undertake project over the academic year, which will involve the analysis, design of a system or sub system in the area identified earlier in the field of Information Technology and Computer Science and Engineering. In some cases; if earlier identified project is not feasible; a new topic must be formulated in consultation with the guide and project coordinator. The project will be undertaken preferably by a group of 3-4 students who will jointly work and Implement the project. The group will select a project which is based on seminar delivered in relevant domain in Project based Seminar activity with approval from a committee formed by the department of senior faculty to check the feasibility and approve the topic.

Guidelines for Students and Faculty

- The Head of the department/Project coordinator shall constitute a review committee for project group; project guide would be one member of that committee by default.
- There shall be two reviews in Project phase –I in semester-I by the review committee.
- The Project Review committee will be responsible for evaluating the timely progress of the projects.
- As far as possible Students should finalize the same project title taken for Project Based Seminar (PBS).
- Student should Identify Project of enough complexity, which has at least 4-5 major functionalities
- Student should identify stakeholders, actors and write detail problem statement for system
- Review committee should revisit "Feasibility Review" conducted by Examiners during Oral examination in Third year in first week after commencement of the term.
- Review committee should finalize the scope of the project.
- If change in project topic is unavoidable then the students should complete the process of
- Project approval by submitting synopsis along with the review of important papers. This new
- Project topic should be approved by review committee.
- The students or project group shall make presentation on the progress made by them before the committee.
- The record of the remarks/suggestions of the review committee should be properly maintained and should be made available at the time of examination.
- Each student/group is required to give presentation as part of review for 10 to 15 minutes followed by a detailed discussion.
- Students should Revisit and Reassess the problem statement mentioned in the project-based seminar activity.

Review 1: Synopsis –

Deliverables:

1. The precise problem statement/title based on literature survey and feasibility study.
2. Purpose, objectives and scope of the project.
3. List of required hardware, software or other equipment for executing the project, test Environment/tools, cost and human efforts in hours.
4. System overview- proposed system and proposed outcomes.
5. Architecture and initial phase of design (DFD).
6. Project plan 1.0.

Review 2: SRS –

Deliverables:

1. SRS and High level design
2. Detail architecture/System design/algorithms/techniques
3. At least 30-40% coding documentation with at least 3 to 4 working modules
4. Test Results
5. Project plan 2.0



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One paper should be published in reputed International conference/International journal based on project work done.

Project report contains the details as Follows:

Contents

List of Abbreviations

List of Figures

List of Graphs

List of Tables

1. Introduction and aims/motivation and objectives
2. Literature Survey
3. Problem Statement/definition
4. Project Requirement specification
5. Systems Proposed Architecture
6. High level design of the project (DFD/UML)
7. System implementation-code documentation-algorithm, methodologies, protocols used.
8. GUI/Working modules/Experimental Results
9. Project Plan
10. Conclusions
11. Bibliography in IEEE format

Appendices

- A. Plagiarism Report of Paper and Project report from any open source tool
- B. Base Paper(s)
- C. Tools used
- D. Papers Published/Certificates

- Use appropriate plagiarism tools, reference managers, Latex Lyx/latest Word for efficient and effective project writing.

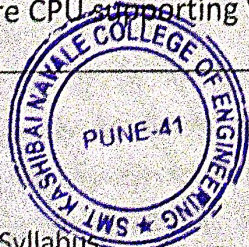
Term Work:

- The term work will consist of a report and presentation prepared by the student on the project allotted to them.

Reference Books

1. UML2 Bible by Tom Pender, Wiley India Pvt. Limited 2011
2. Applying UML and Patterns Second Edition by Craig Larman, Pearson Education
3. UML 2 and the Unified Process, Second Edition, JIM Arlow, Ila Neustadt, Pearson
4. Design Patterns: Elements of Reusable Object Oriented Software, Erich Gamma, Pearson
5. Design Patterns in Java Second Edition by Steven John Metsker, Pearson

All the assignments should be conducted on Latest version of Open Source Operating Systems, tools and Multi-core CPU supporting Virtualization and Multi-Threading



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Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414456C: Elective-I
Usability Engineering

Teaching Scheme:
TH:03 Hours/Week

Credits: 03

Examination Scheme:

In-Sem (Paper): 30 Marks

End-Sem (paper): 70 Marks

Prerequisites:

1. Human Computer Interaction.

Course Objectives:

1. To explain usability engineering lifecycle for designing a user-friendly software.
2. Discuss usability design guidelines, their foundations, assumptions, advantages, and weaknesses.
3. To develop usability evaluation skills for software testing.
4. To explain industry standards for designing and evaluating use-interfaces.
5. To make aware of the current trends in usability engineering.

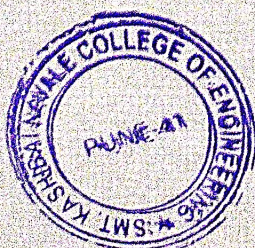
Course Outcomes:

By the end of the course, students should be able to

1. Justify the theory and practice of usability evaluation approaches, methods and techniques.
2. Compare and evaluate strengths and weaknesses of various approaches, methods and techniques for evaluating usability.
3. Design and implement a usability test plan, based on modelling or requirements specification.
4. Choose appropriate approaches, methods and techniques to evaluate the usability of a specified interactive system.

Unit I	INTRODUCTION	7 Hrs
What is Usability: Usability and Other Considerations, Definition of Usability, Example: Measuring the Usability of Icons, Usability Trade-Offs, Categories of Users and Individual User Differences. Generations of User Interfaces: Batch Systems, Line-Oriented Interfaces, Full-Screen Interfaces, Graphical User Interfaces, Next-Generation Interfaces, Long-Term Trends in Usability.		
Unit II	THE USABILITY ENGINEERING LIFECYCLE	7 Hrs
The Usability Engineering Lifecycle: Know the User, Competitive Analysis, Goal Setting, Parallel Design, Participatory Design, Coordinating the Total Interface, Guidelines and Heuristic Evaluation, Prototyping, Interface Evaluation, Iterative Design, Follow-Up Studies of Installed Systems, Meta-Methods, Prioritizing Usability Activities, Be Prepared.		
Unit III	USABILITY HEURISTICS	7 Hrs
Usability Heuristics: Simple and Natural Dialogue, Speak the Users' Language, Minimize User Memory Load, Consistency, Feedback, Clearly Marked Exits, Shortcuts, Good Error Messages, Prevent Errors, Help and Documentation, Heuristic Evaluation.		

Unit IV	USABILITY TESTING	7 Hrs
Usability Testing: Test Goals and Test Plans, Getting Test Users, Choosing Experimenters, Ethical Aspects of Tests with Human, Subjects, Test Tasks, Stages of a Test, Performance Measurement, Thinking Aloud, Usability Laboratories. Usability Assessment Methods beyond Testing: Observation, Questionnaires and Interviews, Focus Groups, Logging Actual Use, User Feedback, Choosing Usability Methods.		
Unit V	INTERFACE STANDARDS	7 Hrs
Interface Standards: National, International and Vendor Standards, Producing Usable In-House Standards. International User Interfaces: International Graphical Interfaces, International Usability Engineering Guidelines for Internationalization Resource Separation, Multi-locale Interfaces.		
Unit VI	FUTURE DEVELOPMENTS	7 Hrs
Future Developments: Theoretical Solutions, Technological Solutions, CAUSE Tools: Computer-Aided Usability Engineering, Technology Transfer, Ubiquitous Computing, Intelligent User-interfaces, Simulation and Virtual Reality. Case Study: Usability Issues in Organizations, Organizational Roles and Structures, Ethics of Usability, Web Analytics.		
Text Books		
1. Jakob Nielsen, "Usability Engineering", Morgan Kaufmann, An Imprint of Academic Press, Harcourt Science and Technology Company		
Reference Books		
1. Rosson, M. B., & Carroll, J. M. (2001), "Usability Engineering: Scenario-Based development of human-computer interaction", Elsevier. 2. Mayhew, D. (1999), "The Usability Engineering Lifecycle: A Practitioner's Handbook for user interface design", Morgan Kaufmann.		



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Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414461A: Audit Course-V
Emotional Intelligence

This Emotional Intelligence (EI) training course will focus on the five core competencies of emotional intelligence: self-awareness, self-regulation, motivation, empathy and interpersonal skills. Participants will learn to develop and implement these to enhance their relationships in work and life by increasing their understanding of social and emotional behaviors, and learning how to adapt and manage their responses to particular situations. Various models of emotional intelligence will be covered.

Course Objectives:

- 1) To develop an awareness of EI models.
- 2) To recognize the benefits of EI.
- 3) To understand how you use emotion to facilitate thought and behaviour.
- 4) To know and utilize the difference between reaction and considered response.

Course Outcomes:

By the end of the course, students should be able to,

- 1) Expand your knowledge of emotional patterns in yourself and others.
- 2) Discover how you can manage your emotions, and positively influence yourself and others.
- 3) Build more effective relationships with people at work and at home.
- 4) Positively influence and motivate colleagues, team members, and managers.
- 5) Increase your leadership effectiveness by creating an atmosphere that engages others.
- 6) Apply EI behaviours and supports high performance.

Unit I	Introduction to Emotional Intelligence (EI)
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Emotional Intelligence and various EI models, The EQ competencies of self-awareness, self-regulation, motivation, empathy, and interpersonal skills, Understand EQ and its importance in life and the workplace

Unit II	Know and manage your emotions
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Emotions, The different levels of emotional awareness, Increase your emotional knowledge of yourself, Recognize 'negative' and 'positive' emotions. The relationship between emotions, thought and behavior, Discover the importance of values, The impact of not managing and processing 'negative' emotions, Techniques to manage your emotions in challenging situations.

Unit III	Recognize Emotions in others
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The universality of emotional expression, Learn tools to enhance your ability to recognize and appropriately respond to others' emotions, Perceiving emotions accurately in others to build empathy 4

Unit IV	Relate to others
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Applying EI in the workplace, the role of empathy and trust in relationships, Increase your ability to create effective working relationships with others (peers, subordinates, managers, clients, Find out how to deal with conflict, Tools to lead, motivate others and create a high performing team.

Books

- 1) Daniel Goleman, "Emotional Intelligence – Why It Matters More Than IQ" Bantam Books.

Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414461B: Audit Course-V
Green Computing

Green computing is the study and practice of using computing resources efficiently. Green computing or green IT, refers to environmentally sustainable computing or IT. The goals of green computing are similar to green chemistry; reduce the use of hazardous materials, Maximize energy efficiency during the product's lifetime, and promote the recyclability or biodegradability of defunct products and factory waste.

Course Objectives:

- 1) To acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
- 2) To examine technology tools that can reduce paper waste and carbon footprint by user.
- 3) To understand how to minimize equipment disposal requirements.
- 4) To gain skill in energy saving practices in their use of hardware.

Course Outcomes:

By the end of the course, students should be able to,

- 1) Understand the concept of green IT and relate it to sustainable development.
- 2) Apply the green computing practices to save energy.
- 3) Discuss how the choice of hardware and software can facilitate a more sustainable operation.
- 4) Use methods and tools to measure energy consumption.

Unit I	Fundamentals of Green IT
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Green IT Fundamentals: Business, IT, and the Environment – Green computing: carbon foot Print - Measuring, Details, reasons to bother, Plan for the Future, Cost Savings: Hardware, Power.

Unit II	Green Assets and Power Problems
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Green Assets: Buildings, Data Centers, Networks, and Devices, Green Information Systems : Design and Development Models, Monitoring Power Usage, Servers, Low-Cost Options, Reducing Power Use, Data De-Duplication, Low-Power Computers and peripheral devices.

Unit III	Green Information Systems
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Initial Improvement Calculations, Selecting Metrics, Tracking Progress, Change Business Processes, Customer Interaction, Paper Reduction, Green Supply Chain, Improve Technology Infrastructure, Reduce PCs and Servers, Shared Services, Hardware Costs, Cooling.

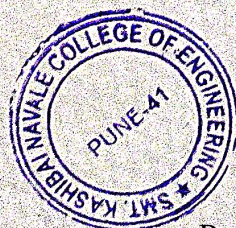
Unit IV	Green Grid Framework
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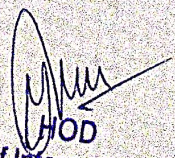
Virtualizing of IT systems, Role of electric utilities, Telecommuting, teleconferencing and teleporting, Materials recycling, Best ways for Green PC, Green Data center Case Studies, Applying Green IT Strategies and Applications to a Home Hospital, Packaging Industry and Telecom Sector.

Reference Books

1. Woody Leonhard, Katherine Murray, "Green Home computing for dummies", August 2009
ISBN: 978-0-470-46745-9
2. Alvin Galea, Michael Schaefer, Mike Ebbers, "Green Data Center steps for the Journey",
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- Shoff/IBM rebook, 2011. ISBN: 10: 1-933742-05-4; 13: 978-1-933742-05-2
3. John Lamb, "The Greening of IT", Pearson Education, 2009, ISBN 10: 0137150830
4. Jason Harris, "Green Computing and Green IT- Best Practices on regulations & industry", Lulu.com, 2008, ISBN: 1558604898.
5. Bud E. Smith, "Green Computing Tools and Techniques for Saving Energy, Money and Resources", CRC Press, 2014, 9781466503403




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Savitribai Phule Pune University
Fourth Year of Information Technology (2015 Course)
414464D: Elective III
Internet and Web Programming

Teaching Scheme: TH:03 Hours/Week	Credits:04	Examination Scheme:
		In-Sem (Paper): 30 Marks End-Sem (paper): 70 Marks

Prerequisites Courses :

1. Internet and Web Programming.

Course Objectives :

1. To understand Internet and Web Programming basic concepts.
2. To develop client side web programming skills.
3. To develop server side web programming skills.
4. To understand Web Services and Content Management System.
5. To understand mobile web development and develop mobile web development skills.
6. To understand web security and cyber ethics.

Course Outcomes :

By the end of the course, students should be able to

1. Demonstrate static website using basic tools.
2. Develop client side programming skills.
3. Develop server side programming skills.
4. Understand web services and handle content management tools.
5. Develop mobile website using mobile web development tools.
6. Understand aspects of web security and cyber ethics.

UNIT I	INTERNET AND WEB PROGRAMMING ESSENTIALS	8 Hrs
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The Internet, Introduction Basic Internet Protocol, The World Wide Web, Introduction to Web Programming, Web Clients, Web Servers, Browser and Search Engines.

Markup Languages : Introduction to HTML, Static and dynamic HTML, Structure of HTML documents, HTML Elements, Linking in HTML, Anchor Attributes, Image Maps, Meta Information, Image Preliminaries, Layouts, Backgrounds, Colors and Text, Fonts, Tables, Frames and layers, Audio and Video Support with HTML Database integration, , Forms Control, Form Elements, Applying Styles, values, selectors, class, ids, inheritance, layout, backgrounds, borders, margin, padding, lists, fonts, text formatting, positioning. HTML5. Introduction to Style Sheet, Inserting CSS in an HTML page, CSS selectors, Introduction to XML, XML key component, Transforming XML into XSLT, DTD: Schema, elements, attributes, Introduction to JSON.

UNIT II	CLIENT SIDE PROGRAMMING	8 Hrs
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JavaScript: Overview of JavaScript, using JS in an HTML (Embedded, External), Data types, Control Structures, Arrays, Functions and scopes, Objects in JS, DOM: DOM levels, DOM Objects and their properties and methods, Manipulating DOM, JQuery: Introduction to JQuery, Introduction to AJAX, Working of AJAX, AJAX processing steps, coding AJAX Script. Introduction to Angular JS.

UNIT III	SERVER SIDE PROGRAMMING	8 Hrs
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Introduction to Server Side technology and TOMCAT, Servlet: Introduction to Servlet, need and advantages, Servlet Lifecycle, Creating and testing of sample Servlet, session management. JSP: Introduction to JSP, advantages of JSP over Servlet, elements of JSP page: directives, comments, scripting elements, actions and templates, JDBC Connectivity with JSP. PHP: Introduction to PHP, Features, PHP script, PHP syntax, conditions & Loops, Functions, String manipulation, Arrays & Functions, Form handling, Cookies & Sessions, using MySQL with PHP.

UNIT IV	WEB SERVICES AND CONTENT MANAGEMENT SYSTEMS	8 Hrs
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Introduction to Web Services, Web Services Architecture, XML Messaging, SOAP, WSDL, UDDI, REST, Java Web Services, Amazon Web Services, DevOps, Introduction to Content Management System (CMS), Wordpress / Joomla, Advanced Technology: Bootstrap, JSF, Spring.

UNIT V	MOBILE WEB DEVELOPMENT	8 Hrs
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What is Mobile Web? Understanding Mobile Devices, Mobile Data Usage, Mobiles and Desktops, Building an HTML page, Getting jQuery Mobile, Implementing jQuery Mobile, Working with data attributes, Working with jQuery Mobile Pages, Enhancing Pages with Headers, Footers, and Toolbars; Working with Lists, Building a Simple Mobile Website, Working with Forms and jQuery Mobile, Creating Modal Dialogs and Widgets, Creating Grids, Panels, and Other Widgets; jQuery Mobile Configuration, Utilities, and JavaScript Methods; Working with Events.

UNIT VI	WEB SECURITY AND CYBER ETHICS	8 Hrs
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Overview of Web Security: Need of Web Security, Breach of Web Security, What need to be Secure on Web? Can Web be secure? Aspects of Web Security, Purpose of Web Security, A Security Equation, Defining Security Equation, Common Threats on Web, User level Security, Server Level Security, Cyber ethics, Issues in Cyber ethics.

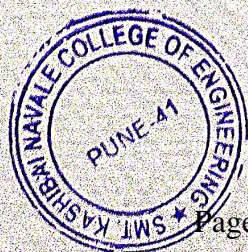
Text Books

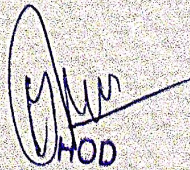
1. Kogent Learning Solutions Inc, Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, XML and AJAX, Blackbook, Dreamtech Press, Second Edition, ISBN:9788177228496.
2. Raymond Camden, Andy Matthews, jQuery Mobile Web Development Essentials, Packt Publishing, Second Edition, 9781782167891.
3. Ethan Cerami, Web Services Essentials, O'Reilly Media, First Edition, 0-596-00224-6.
4. Shweta Bhasin, Web Security Basics, Premier Press, First Edition, ISBN: 1978-1592000067.

Reference Books

1. Dr.Hiren Joshi, Web Technology and Application Development, DreamTech, First, ISBN:978-93- 5004-088-1.
2. Santosh Kumar K., DT Editorial Services, Black Book, JDBC 4.2, Servlet 3.1 & JSP 2.3, Dreamtech Press, Second Edition, ISBN:978-8177228700.
3. Steven M. Schafer, "HTML, XHTML and CSS", Wiley India Edition, Fourth Edition, 978-81-265-1635-3.
4. B. V. Kumar, S. Sangeetha, S.V. Subrahmanya, J2EE Architecture, an illustrative gateway to enterprise solutions, Tata McGraw Hill Publishing Company, Second Edition, ISBN:978-0-070-621-633.
5. Ivan Bayross, "Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP", BPB Publications, 4th Edition, ISBN:978-8183330084.
6. Brain Fling, Mobile Design and Development, O'REILLY, First Edition, ISBN: 13:978-81-8404-817-9.

7. Jason Hunter, Java Servlet Programming, O'reilly Publications, 2nd Edition, ISBN: 978-0-596-00040-0.
8. Adam Bretz & Colin J Ihrig, Full Stack Javascript Development with MEAN, SPD, First Edition, ISBN:978-0992461256.




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Sinhgad Institutes

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Department of Electronics and Telecommunication Engineering

Criteria I

Curricular Aspects

Institute Integrates Crosscutting Issues

Academic Year 2021-22

Sr. No.	Academic Year	Class	Pattern	w.e.f.	List of course
1	2021-22	TE	2019	2021-22	Non-Conventional Energy Resources
					Developing Soft skills and Personality
					Entrepreneurship and IP Strategy
					Urbanization and Environment
					Environmental & Resource Economics
2.	2021-22	BE	2015	2018-19	Green Energy
					Human Behavior
					Team Building, Leadership and Fitness
					Environmental Issues and Disaster Management
					Project Phase-I
					Project Phase-II



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**Course Structure for B. E. (Electronics/Electronics & Telecommunication Engineering) 2015 Course
(With effect from Academic Year 2018-19)
SEMESTER I**

Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credits	
		Theor y	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR+OR
404181	VLSI Design& Technology	3	--	--	30	70	--	--	--	100	3	--
404182	Computer Networks & Security	4	--	--	30	70	--	--	--	100	4	--
404183	Radiation & Microwave Techniques	3	--	--	30	70	--	--	--	100	3	--
404184	Elective I	3	--	--	30	70	--	--	--	100	3	--
404185	Elective II	3			30	70	--	--	--	100	3	--
404186	Lab Practice -I (CNS+ RMT)	--	--	4	--	--	50	--	50	100	--	TW 01 + OR 01
404187	Lab Practice -II (VLSI + Elective I)	--	--	4	--	--	50	50		100	--	TW01 + PR 01
404188	Project Stage I	-	2	--	--	--	-	--	50	50	--	2
	Audit Course 5	--	--	--	--	--	--	--	--	--		
Total		16	2	8	150	350	100	50	100	750	16	6
Total Credits											22	
Elective I 1. Digital Image and Video Processing 2. Industrial Drives and Control 3. Embedded Systems & RTOS 4. Internet of Things				Elective II 1. Wavelets 2. Electronics Product Design 3. Optimization Techniques 4. Artificial Intelligence 5. Electronics in agriculture					Audit Course 5 1. Green Energy 2. Human Behavior			




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Course Structure for B. E . (Electronics/Electronics & Telecommunication Engineering) 2015 Course
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SEMESTER II

Course Code	Course	Teaching Scheme			Semester Examination Scheme of						Credit	
		Hours / Week			Marks						TH/TW	PR+OR
		Theory	Tut	Pract	In Sem	End-Sem	TW	PR	OR	Total		
404189	Mobile Communication	3	--	--	30	70	--	--	--	100	3	--
404190	Broadband Communication Systems	4	--	--	30	70	--	--	--	100	4	--
404191	Elective III	3	--	--	30	70	--	--	--	100	3	--
404192	Elective IV	3	--	--	30	70	--	--	--	100	3	--
404193	Lab Practice –III (MC+BCS)	--	--	4	--	--	50	50	--	100	--	TW 01 + PR 01
404194	Lab Practice –IV (Elective III)	--	--	2	--	--	--	--	50	50	--	1
404195	Project Stage II	--	6	-	--	--		150	50	200	--	TW 04 + OR 02
	Audit Course 6	--	--	--	--	--	--	--	--	--		
Total		13	6	6	12B E-0	280	200	50	100	750	13	9
Total Credits											22	
<u>Elective III</u>		<u>Elective-IV</u>						<u>Audit Course 6</u>				
1. Machine Learning 2. PLC s and Automation 3. Audio and Speech Processing 4. Software Defined Radio 5. Audio Video Engineering		1. Robotics 2. Biomedical Electronics 3. Wireless Sensor Networks 4. Renewable Energy Systems 5. Open Elective*						1. Team Building, Leadership and Fitness 2. Environmental issues and Disaster Management				



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T.E. (Electronics & Telecommunication Engineering) 2019 Course
(With effect from Academic Year 2021-22)

Semester-V

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	Ind-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TU	
304181	Digital Communication	03	-	-	30	70	-	-	-	100	03	-	-	03
304182	Electromagnetic Field Theory	03	-	01	30	70	25	-	-	125	03	-	01	04
304183	Database Management	03	-	-	30	70	-	-	-	100	03	-	-	03
304184	Microcontrollers	03	-	-	30	70	-	-	-	100	03	-	-	03
304185	Elective - I	03	-	-	30	70	-	-	-	100	03	-	-	03
304186	Digital Communication Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304187	Database Management Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
304188	Microcontroller Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304189	Elective I Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
304190	Skill Development	-	02	-	-	-	25	-	-	25	-	01	-	01
304191A	Mandatory Audit Course ⁵ &	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		15	10	01	150	350	50	125	25	700	-			
Total Credit											15	05	01	21

Elective -I

1. Digital Signal Processing
2. Electronic Measurement
3. Fundamentals of JAVA Programming
4. Computer Networks

Mandatory Audit Course

1. Developing Soft skills and Personality
2. Entrepreneurship and IP Strategy
3. Urbanization and Environment
4. Environmental & Resource Economics
5. Environment and Development
6. Globalization and Culture



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T.E. (Electronics & Telecommunication Engineering) 2019 Course
(With effect from Academic Year 2021-22)

Semester-VI

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial		End-Sem								
304192	Cellular Networks	03	-	-	30	70	-	-	-	100	03	-	-	03
304193	Project Management	03	-	-	30	70	-	-	-	100	03	-	-	03
304194	Power Devices & Circuits	03	-	-	30	70	-	-	-	100	03	-	-	03
304195	Elective-II	03	-	-	30	70	-	-	-	100	03	-	-	03
304196	Cellular Networks Lab	-	02	-	-	-	-	-	50	50	-	01	-	01
304197	Power Devices & Circuits Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304198	Elective-II Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
304199	Internship**	-	-	-	-	-	100	-	-	100	-	-	04	04
304200	Mini Project	-	04	-	-	-	25	-	50	75	-	02	-	02
304191B	Mandatory Audit Course 6 th	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		12	10	00	120	280	125	75	100	700				
Total Credit											12	05	04	21

Elective -II

1. Digital Image Processing
2. Sensors in Automation
3. Advanced JAVA Programming
4. Embedded Processors
5. Network Security

Mandatory Audit Course 6

1. Patent Law for Engineers and Scientists
2. English language for competitive exams
3. Energy Resources, Economics and Environment Principles of Human Resource Management
4. Six Sigma
5. Non-Conventional Energy Resources

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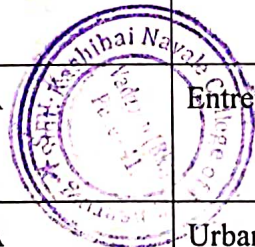
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List of the courses that address crosscutting issues

Electronics & Telecommunication Engineering

Sr. No.	Core Course	Course No.	Course Name
1.	BE Electronics & Telecommunication (2019)	404189 A	Energy Economics & Policy
2.	BE Electronics & Telecommunication (2019)	404189 B	Human Resource Development
3.	BE Electronics & Telecommunication (2019)	404189 C	Innovation & Entrepreneurship
4.	BE Electronics & Telecommunication (2019)		Electronic Product Development
5.	TE Electronics & Telecommunication (2019)	304191 B	Non-Conventional Energy Resources
6.	TE Electronics & Telecommunication (2019)	304191A	Developing Soft skills and Personality
7.	TE Electronics & Telecommunication (2019)	304191A	Entrepreneurship and IP Strategy
8.	TE Electronics & Telecommunication (2019)	304191A	Urbanization and Environment
9.	TE Electronics & Telecommunication (2019)	304191A	Environmental & Resource Economics
10.	TE Electronics & Telecommunication (2015)	304217B	Cyber and Information Security

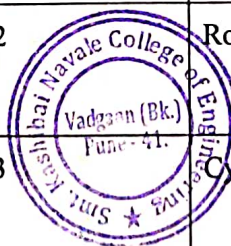


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11.	BE Electronics & Telecommunication (2015)	404196A	Green Energy
12.	BE Electronics & Telecommunication (2015)	404196 B	Human Behavior
13.	BE Electronics & Telecommunication (2015)	404196 C	Team Building, Leadership and Fitness
14.	BE Electronics & Telecommunication (2015)	404196 D	Environmental Issues and Disaster Management
15.	SE Electronics & Telecommunication (2019)	204200	Project Based Learning
16.	SE Electronics & Telecommunication (2019)	204190	Technical English For Engineers
17.	SE Electronics & Telecommunication (2019)	204190	Ecology and Environment
18.	SE Electronics & Telecommunication (2019)	204190	Ecology and Society
19.	SE Electronics & Telecommunication (2019)	204190	German I
20.	SE Electronics & Telecommunication (2019)	204190	Science, Technology and Society
21.	SE Electronics & Telecommunication (2015)	204192	Road safety Management
22.	SE Electronics & Telecommunication (2015)	204193	Cyber crime and law
23.	SE Electronics & Telecommunication (2019)	204190	Introduction to Japanese Language and Culture



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24.	SE Electronics & Telecommunication (2019)	204201	Enhancing Soft Skills and Personality
25.	SE Electronics & Telecommunication (2019)	204201	Language & Mind
26.	SE Electronics & Telecommunication (2019)	204201	Emotional Intelligence
27.	SE Electronics & Telecommunication (2019)	204201	German II
28.	SE Electronics & Telecommunication (2019)	204201	Human Behaviour
29.	SE Electronics & Telecommunication (2019)	204201	Speaking Effectively
30.	TE Electronics & Telecommunication (2015)	304198	Mini Project
31.	BE Electronics & Telecommunication (2015)	404188	Project Phase-I
32.	BE Electronics & Telecommunication (2015)	404195	Project Phase-II
33.	SE Electronics & Telecommunication (2015)	204192	Japanese Language module-I
34.	SE Electronics & Telecommunication (2015)	204192	Road Safety Management
35.	SE Electronics & Telecommunication (2015)	204193	Japanese Language module-II
36.	TE Electronics & Telecommunication (2012)	304198	Mini Project


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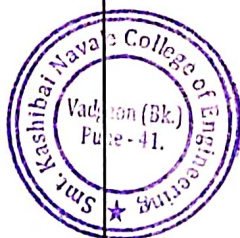
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Description of courses which address the crosscutting issues

Electronics & Telecommunication Engineering

Core courses	Course Number	Course Name	Cross-cutting issue	Description of course
BE Electronics & Telecommunication (2019)	404189 A	Energy Economics & Policy	Environmental Studies	Energy efficiency and conservation are major factors in the reduction of the environmental impact of the energy sector, particularly with regard to climate change. Energy efficiency also contributes to reducing external dependence and vulnerabilities in the energy domain. Although not all public policies seem justified, specific policies for promoting energy conservation may be required, preferably based on economic instruments or on the provision of information to consumers
BE Electronics & Telecommunication (2019)	404189 B	Human Resource Development	Human Values, Environment and Ecology, Ethical values, Sustainability	Human Resource Development meets the needs of students studying both undergraduate and specialist postgraduate modules in learning and development and human resource management, as well as CIPD students. It provides students with the tools to analyze, develop and implement learning and development strategies for the workplace
BE Electronics & Telecommunication (2019)	404189 C	Educational Leadership	Human values, Professional ethics	This course was motivated by the premise that no nation grows further than the quality of its educational leaders. The purpose of this is to examine the wider context of leadership and its effectiveness towards improving school management. This academic evaluation examines recent theoretical developments in the study of educational leadership in school management. It begins with a concise overview of the meaning and concept of leadership in terms of research, theory, and practice

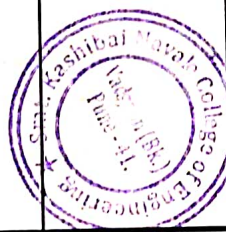


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TE Electronics & Telecommunication (2019)	304191 B	Non-Conventional Energy Resources	Professional ethics	Energy is the key input to drive and improve the life cycle. Primarily, it is the gift of the nature to the mankind in various forms. The consumption of the energy is directly proportional to the progress of the mankind. With ever growing population, improvement in the living standard of the humanity, industrialization of the developing countries, the global demand for energy is expected to increase rather significantly in the near future
TE Electronics & Telecommunication (2019)	304191 A	Developing Soft skills and Personality	Human values, Professional ethics	Personality development is becoming a significant aspect in the evolution of a student in the echelons of higher education. The acquisition of 'soft' skills such as ethics, emotional intelligence, language and communication, legal and management aspects besides one's professional field is necessary and crucial for holistic education. The desire in a young professional to create a strong positive impression about the self in intellectual and social circles is paramount. Hence he feels that the inculcation of values and skills are imperative for him before embarking upon the world where he will have to take complete charge of his life. In educational institutions there is an ever-growing demand from aspirants for a course to groom them for interviews, seminars and discussion so that they succeed.
TE Electronics & Telecommunication (2019)	304191 A	Entrepreneurship and IP Strategy	Human Values, Environment and Ecology, Ethical values, Sustainability	Adequate management of intellectual property (IP) is critical to sustaining competitive advantage and managing outbound open innovation (OI), which describes the inside-out flows of knowledge and technology



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TE Electronics & Telecommunication (2019)	304191 A	Urbanization and Environment	Environmental Studies	Urbanization refers to general increase in population and the amount of industrialization of a settlement. It includes increase in the number and extent of cities. It symbolizes the movement of people from rural to urban areas. Urbanization happens because of the increase in the extent and density of urban areas. Due to uncontrolled urbanization in India, environmental degradation has been occurring very rapidly and causing many problems like land insecurity, worsening water quality, excessive air pollution, noise and the problems of waste disposal. This paper emphasizes on the effect of urbanization on environmental components mainly climate, biosphere, land and water resources.
TE Electronics & Telecommunication (2019)	304191 A	Environmental & Resource Economics	Environmental Studies	It is designed for students on interdisciplinary environmental science courses as well as those majoring in economics. Sustainable development contains a discussion of key issues such as poverty and growth, green national income accounting, biodiversity and the greenhouse effect.
TE Electronics & Telecommunication (2015)	304217 B	Cyber and Information Security	Professional ethics	To create the awareness among students to follow the professional ethics, avoid the plagiarism.
BE Electronics & Telecommunication (2015)	404196 A	Green Energy	Professional ethics	Significance of Waste heat recovery and Cogeneration. Energy Audit of the residence / society / college where students are studying. - Carry out electrical tariff calculation and accurately predict the electricity bill required for the installation. - Suggest various methods to reduce energy consumption of the equipment / office / premises.

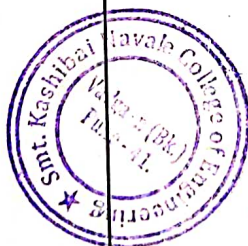


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BE Electronics & Telecommunication (2015)	404196 B	Human Behavior	Professional ethics, environment and sustainability	Intellectual property rights creates the awareness about new innovative ideas and also refers to the rights which are attached to the creation of the mind and which take the form of property
BE Electronics & Telecommunication (2015)	404196 C	Team Building, Leadership and Fitness	Professional ethics, Human values.	This course teaches the students to apply the Industrial Engineering concept in the industrial environment, Manage and implement different concepts involved in methods study and understanding of work content in different situations, Undertake project work based on the course content, Describe different aspects of work system design and facilities design pertinent to manufacturing industries, Identify various cost accounting and financial management practices widely applied in industries, Develop capability in integrating knowledge of design along with other aspects of value addition in the conceptualization and manufacturing stage of various products
BE Electronics & Telecommunication (2015)	404196 D	Environment al Issues and Disaster Management	Professional ethics, Human values.	This course teaches the students to emphasize project based learning activities that are long-term, interdisciplinary and student-centric. To inculcate independent and group learning by solving real world problems with the help of available resources. To be able to develop applications based on the fundamentals of mechanical engineering by possibly applying previously acquired knowledge. To get practical experience in all steps in the life cycle of the development of mechanical systems: specification, design, implementation, and testing.



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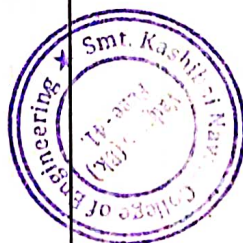
BE Electronics & Telecommunication (2015)	404188	Project Phase-I	Professional ethics	Introduce the skills required in an industry such as design, development, assembly & disassembly. Develop the skills required for fault diagnose of engine and transmission of different automotive and various home appliances. Establish the skills required for maintenance of any machine tool. Create awareness about the industrial environment.
SE Electronics & Telecommunication (2019)	204200	Project Based Learning	Professional ethics	Introduce the skills required in an industry such as design, development, assembly & disassembly. Develop the skills required for fault diagnose of engine and transmission of different automotive and various home appliances. Establish the skills required for maintenance of any machine tool. Create awareness about the industrial environment.
SE Electronics & Telecommunication (2019)	204190	Technical English For Engineers	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
SE Electronics & Telecommunication (2019)	204190	Ecology and Environment	Environmental Studies	Ecology is the study of interaction among living organisms (plants, animals, microbes) as well as interaction with its abiotic environment (temperature, water, air, soil, light, etc.). Students will understand all the conditions that influence and affect the development and sustainability of life of all organisms present on the earth. It is an immediate surrounding of living

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				organisms in which it lives and operates.
SE Electronics & Telecommunication (2019)	204190	Ecology and Society	Environmental Studies	The course focuses on the ecology of human societies –human-environment relationships, with reference to cultural ecology and issues surrounding sustainable development. The ecology of human societies is about connections between ecological and human social, cultural, and organizational processes. Based on selected works of ecological anthropologists, this course focuses on the dynamic relationships between human cultures and their ecological environments. It uses basic concepts of anthropology, including the concept of culture as a dynamic system of learned behaviours and beliefs, to better understand how human beings adapt to and change their physical and social surroundings.
SE Electronics & Telecommunication (2019)	204190	German I	Human values, Professional ethics	German I is meant to be an introduction to the German language and a basic orientation towards Germany (and to some extent Austria and Switzerland). Learning to understand and articulate oneself in day to day real life situations, and to begin to make sense of Germany as a cultural space are the overall objectives of the course. Serious learners should be able to grasp the basic sentence structure and build a good foundational vocabulary through this course.
SE Electronics & Telecommunication (2019)	204190	Science, Technology and Society	Human Values, Environment and Ecology, Ethical values, Sustainability	Science, Technology & Society enhances student's understanding of the way in which advances in science and technology influence society and vice versa.
SE Electronics & Telecommunication	204190	Introduction to Japanese	Human values, Professional ethics	Japanese Language has been taught as part of the Foreign Language Programme at IIT Kanpur since July

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(2019)		Language and Culture		1995. With increasing technical and economic ties between India and Japan, more Japanese companies are doing business in India and vice versa. This gives rise to the urgent need for more Indians to learn at least the rudiments of Japanese for their professional advancement. This course has been designed with the above background and keeping in mind the requirements of Level's 5 of the 'Japanese Language Proficiency Test', held by Japan Foundation. It focuses on conversational skills and basic training in sentence construction, simple situational conversation, grammatical knowledge and elements of Kanji (Chinese pictograms), and the kana (Katakana and Hiragana) scripts.
SE Electronics & Telecommunication (2019)	204201	Enhancing Soft Skills and Personality	Professional ethics	The course aims to cause an enhanced awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality. Hard or technical skills help securing a basic position in one's life and career. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve excellence, and derive fulfilment and supreme joy. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness, and effective communication skills.
SE Electronics & Telecommunication (2019)	204201	Language & Mind	Professional ethics	In addition to credits courses, it is mandatory that there should be an audit course (non-credit course) from the second year of Engineering. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability.



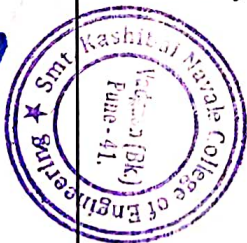
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SE Electronics & Telecommunication (2019)	204201	Emotional Intelligence	Human values, Professional ethics	Emotional intelligence (otherwise known as emotional quotient or EQ) describes the ability to understand, use, and manage your own emotions in positive ways to relieve stress, communicate effectively, empathize with others, overcome challenges and defuse conflict.
SE Electronics & Telecommunication (2019)	204201	German II	Human values, Professional ethics	German II builds upon German I to help the student acquire the A level of competence(A1+A2) as per the European Common Language Framework. It is meant to broaden and deepen the learner's understanding of German grammatical structures, further enrich her vocabulary to cover all aspects of daily living, and to develop a basic understanding of the German cultural space. Serious learners should be able to get a comprehensive understanding of basic German grammar, and build a good enough vocabulary to be able to articulate themselves in any given daily life situation, and about basic themes of personal interest.
SE Electronics & Telecommunication (2019)	204201	Human Behaviour	Human Values and Sustainability	Human behaviour describes the way humans act and interact. It is based on and influenced by several factors, such as genetic make-up, culture and individual values and attitudes.
SE Electronics & Telecommunication (2019)	204201	Speaking Effectively	Social Values, Professional Ethics, Sustainability	This course aims to introduce students to the dynamics of effective spoken communication by establishing speaking as an autonomous medium with a distinctive vocabulary, syntax, structure, style and register. It will enable learners to participate in one-to-one interactions, in small groups and before a group. Learners are expected to master the fundamentals of speaking such as vocabulary, body language, pronunciation, and basic conversation skills before they move on to more advanced activities such as appearing in interviews, making formal



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				presentations and participating in meetings.
SE Electronics & Telecommunication (2015)	204192	Japanese Language module-I	Human values, Professional ethics	An emerging field of research in Japanese linguistics examines the association between types of characters portrayed and their spoken language features in fiction, popular culture .Sets of spoken language features (vocabulary and grammar) and phonetic characteristics (intonation and accent patterns) psychologically associated with particular character types are termed "role language".This study seeks to introduce non-Japanese readers to the expanding research on role language in Japanese.
SE Electronics & Telecommunication (2015)	204192	Road Safety Management	Social Values, Professional Ethics, Sustainability	It focuses on road safety funding and seeks to provide an insight into how funding factors may affect both the effectiveness and the efficiency of road safety management. The study follows an exploratory approach based on semi-structured interviews targeting key stakeholders in road safety management such as policy makers from various government agencies, private sector representatives and academia.
SE Electronics & Telecommunication (2015)	204193	Japanese Language module-II	Human values, Professional ethics	An emerging field of research in Japanese linguistics examines the association between types of characters portrayed and their spoken language features in fiction, popular culture .Sets of spoken language features (vocabulary and grammar) and phonetic characteristics (intonation and accent patterns) psychologically associated with particular character types are termed "role language".This study seeks to introduce non-Japanese readers to the expanding research on role language in Japanese.
TE Electronics & Telecommunication (2015)	304198	Mini Project	Professional ethics	Industry/on project experience provides much more professional experience as value addition to classroom teaching. To encourage and provide



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				opportunities for students to get professional/personal experience through internships.
BE Electronics & Telecommunication (2015)	404188	Project Phase-I	Professional ethics	Introduce the skills required in an industry such as design, development, assembly & disassembly. Develop the skills required for fault diagnose of engine and transmission of different automotive and various home appliances. Establish the skills required for maintenance of any machine tool. Create awareness about the industrial environment.
BE Electronics & Telecommunication (2015)	404195	Project Phase-II	Professional ethics	Introduce the skills required in an industry such as design, development, assembly & disassembly. Develop the skills required for fault diagnose of engine and transmission of different automotive and various home appliances. Establish the skills required for maintenance of any machine tool. Create awareness about the industrial environment.



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Sinhgad Institutes

REPORT

on

Guest Lecture on

“Team Building, Leadership & Fitness”

(2015 Course)

Academic Year :2021-22



Mr. S. P. Dolli & Ms. S. R. Jadhav
Division Coordinator

Dr. P. G. Chilveri
Coordinator

Department of E & TC

Head

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Telecommunication Engineering**
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Department of Electronics and Telecommunication Engineering

Date: 04/04/2022

Audit Course on "Team Building, Leadership & Fitness"

Date:	04/04/2022	Time:	4.00 pm to 5.30 pm
Venue:	Online Platform Microsoft Teams		
Title of Program:	Team Building, Leadership & Fitness		
Class:	B.E (E & TC)		
Total no. of Student:	183		
Program Co-coordinator:	Dr. P. G. Chilveri, Mr. S. P. Dolli, Ms. S. R. Jadhav		

As per BE E&TC (2015 Course) SPPU syllabus we have organized the webinar guest lecture on Team building, Leadership & Fitness by **Mr. Amit Jagtap** director of leaping Antlers media, Pune. In his work experience he has worked in the capacity of wellness manager, business strategist marketing and marketing head etc. He is also an active member of art of living group and an international trainer for Yoga as well.

Team building allows students to work together in social situations just as they would in the classroom, their daily lives, or down the road in the workplace. Team building challenges students to solve problems and execute working with others. It allows team members to stay motivated and energized to work on the project together. By working together, members of the team can —work together, stay together, and achieve together. Trust and communication issues can also be noticed from team building exercises. Team building is known to improve performance in teams; members will remain motivated and can easily overcome indifferences to see the strengths in all team members.



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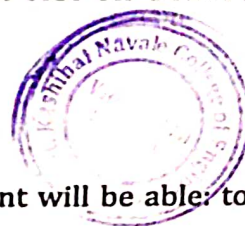
Leadership is about the art of motivating, influencing and directing people so that they work together to achieve the goals of a team or broader organization. It's important for students to experience leadership opportunities during their schooling, to learn the art of building relationships within teams, defining identities and achieving tasks effectively. It also provides an opportunity to learn to identify and display effective communication and interpersonal skills. Leadership begins with identifying and understanding our values. Our values are our fundamental beliefs – those principles we consider to be worthwhile and desirable.

Fitness does not only refer to being physically fit, but also refers to a person's mental state as well. If a person is physically fit, but mentally unwell or troubled, he or she will not be able to function optimally. Mental fitness can only be achieved if your body is functioning well. You can help relax your own mind and eliminate stresses by exercising regularly and eating right. People who are physically fit are also healthier, are able to maintain their most optimum weight and are least prone to cardiac and other health problems. In order to maintain a relaxed state of mind, a person should be physically active. A person who is fit both physically and mentally strong enough to face the ups and downs of life, and is not affected by drastic changes if they take place

As per the syllabus we have taken online assessment test on Team Building, Leadership & Fitness of 30 marks dated on 04th April. 2022.

Program Outcome:

After the successful completion of this course, the student will be able to develop understanding of team skills and dynamics, to identify and develop personal skills to become a more effective team member, to introduce to the students the social change model of leadership, to expose students to the leadership skills and imbibe within them that the fact



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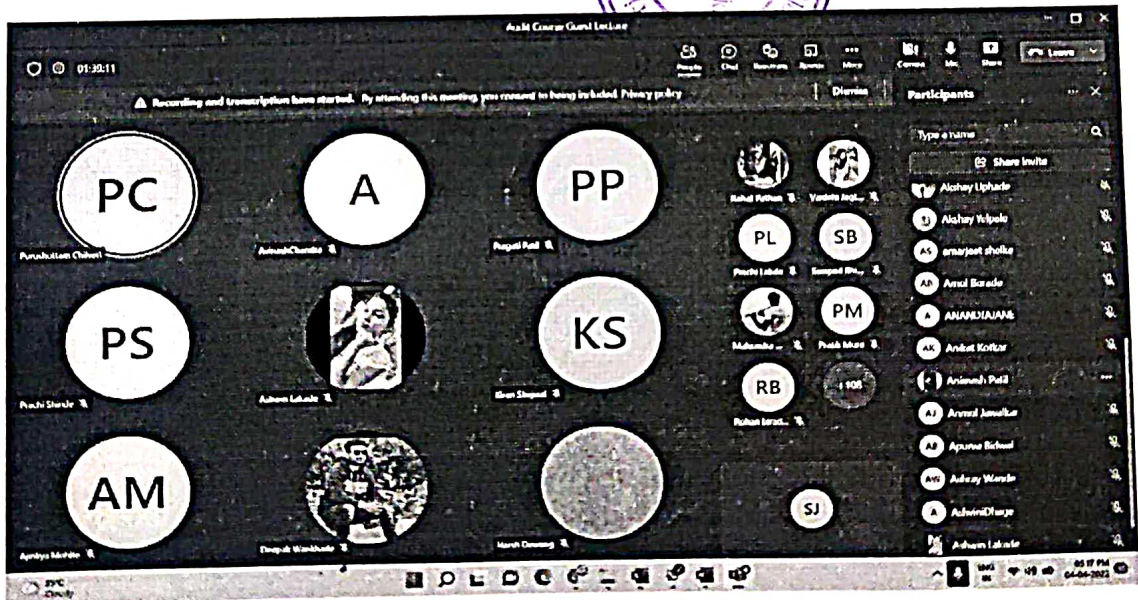
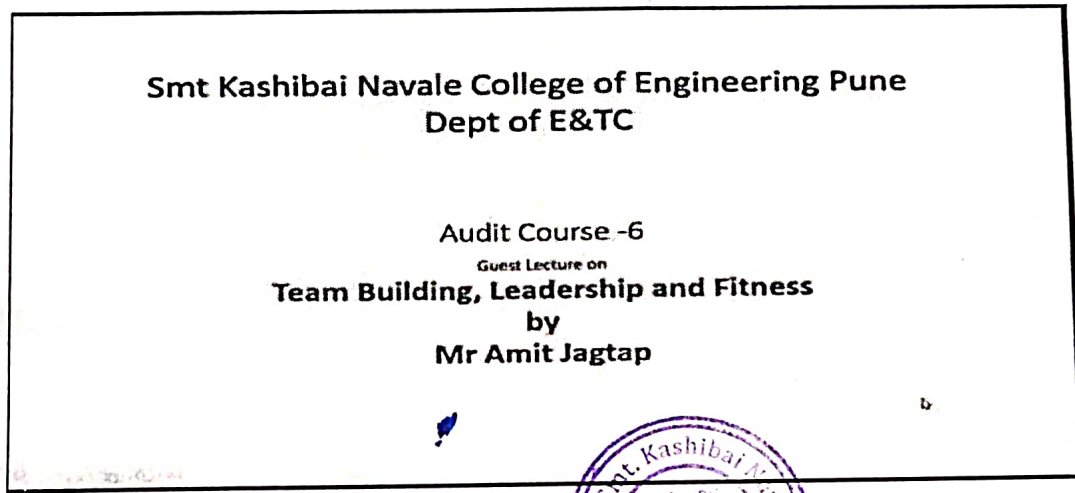
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that Leadership is a process, not a characteristic associated with an individual or role, to enable student to understand principles of fitness training and exercise and to enable students to understand human posture, nutritional values and mental fitness

Program Event Photos:



Amit Jagtap
Head

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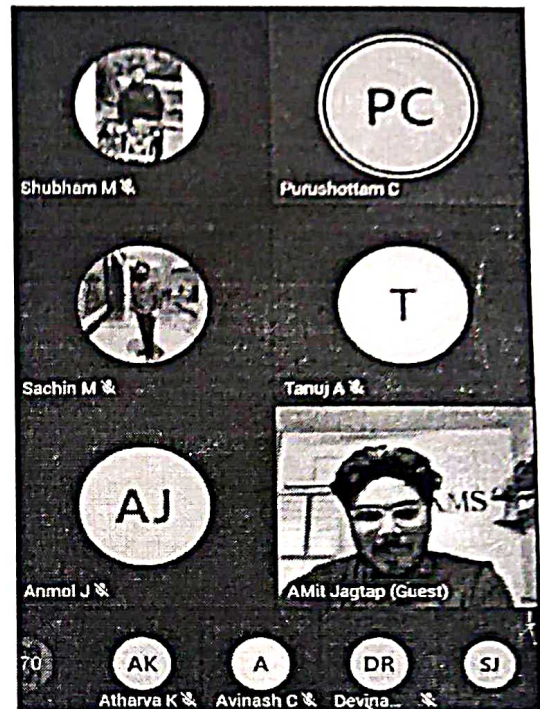
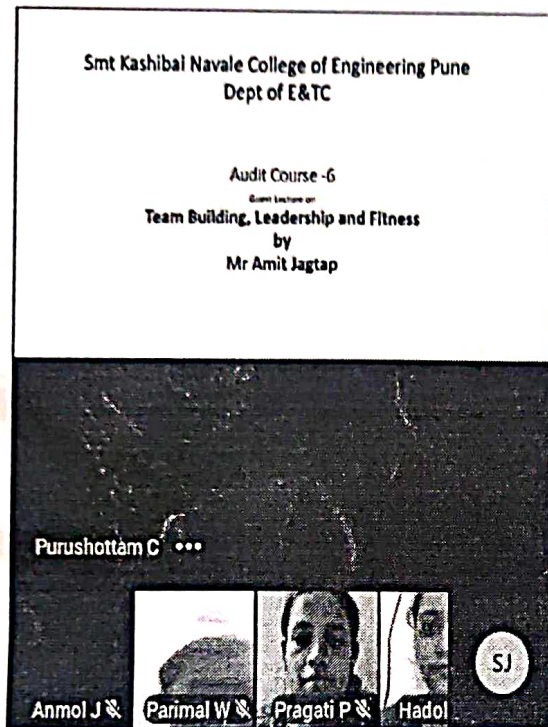


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[Signature]

Mr. S. P. Dolli & Ms. S. R. Jadhav
Division Coordinator

[Signature]

Dr. P. G. Chilveri
Program Coordinator

[Signature]

Dr. S. K. Jagtap
HOD (E&TC)

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Sinhgad Institutes

A

REPORT

On

Guest Lecture

Simulation & Implementation of Project on Arduino Platform

Academic Year: 2021-2022

Dr.P.G.Chilveri and S.K.Patil

Coordinator

Department of E & TC Engineering



Jagtap
Head

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Department of Electronics and Telecommunication Engineering

Date:10th April 2022

Simulation & Implementation of Project on Arduino Platform

Date:	9th April 2022	Time:	9.00 am to 11.15 am
Venue:	SKNCOE		
Title of Program:	Simulation & Implementation of Project on Arduino Platform		
Speaker/Guest:	Mr.S.S.Kendre BITS Pilani		
Class:	SE		
Total no. of Students:	234		
Program Co-coordinator:	Dr.P.G.Chilveri,Mr.S.K.Patil		

Program description for Guest Lecture

As most of the Project Based Learning are based on Arduino hence this guest lecture is arranged for the SE students so that they will learn how to implementation a simple projects on Arduino. Speaker **Prof. S.S. Kendre** from **BITS Pilani** started the session with the introduction of Arduino. He explains the types of Arduino available in the market and how students can reform them into a commercial product. He has also extended his discussions on IO interfacing like interfacing of Sensors, Actuators, and Relays etc. He shown them the blinking of LED by interfacing a switch at the input and LED at Output of an Arduino board on simulator. He also highlighted the costing analysis for third year and final year projects using Arduino kit. He has also given brief overview of useful soft wares used for the resultant product. Students were motivated to utilize their time in studying and hands on trainings for Arduino Workshops. Few student from Division-II, asked questions about costings and soft



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wares and the speaker gave satisfactory answers to all the queries. This expert session has great impact on students as well as faculties.

Program Outcome:

After successful completion of this even students are able to apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems. Identify, formulate, review research literature, and analyze complex engineering problems and reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. Students are able to design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. They understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. Also able to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Dr.P.G.Chilveri and S.K.Patil
(Coordinator)

E&TC Engineering Department

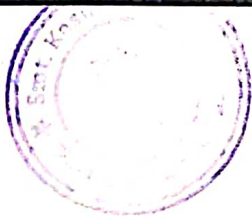
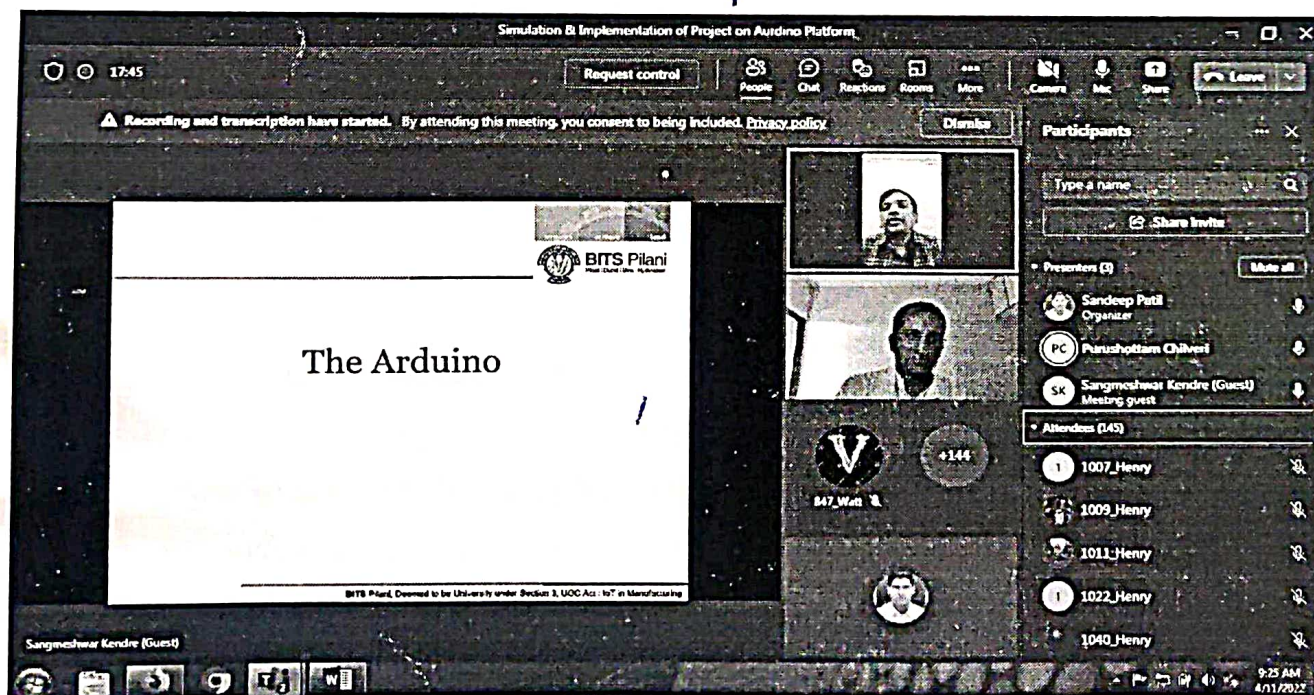
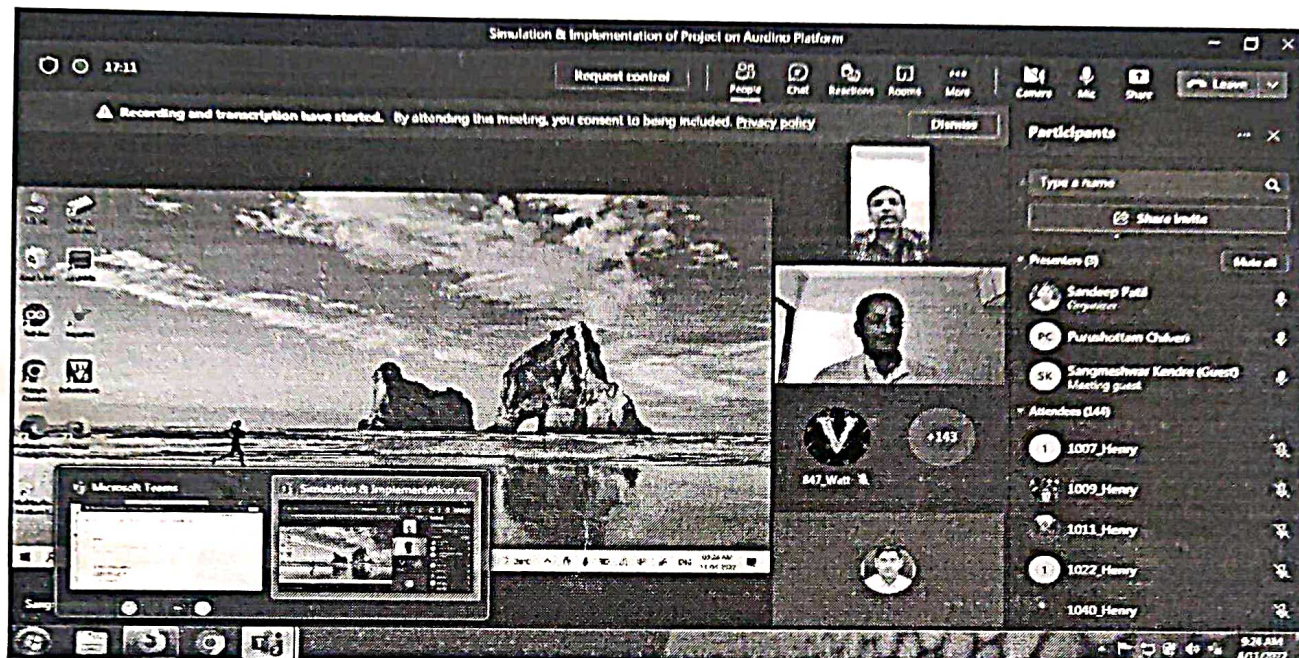


Dr.S.K.Jagtap

H.O.D.

Head
E&TC Engineering Department
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Glimpses of the Event



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Simulation & Implementation of Project on Arduino Platform

Request control

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Participants

Type a name

Share invite

Presenters (0)

Attendees (16)

1007_Henry

1009_Henry

1011_Henry

1022_Henry

1040_Henry

The heart of engineering isn't calculation;
It's problem solving.

Schools may teach the numbers first, but calculation is neither the front end of engineering nor its end goal. Calculation is one means among many to finding a solution that provides useful, objectively measurable improvement.

BITS Pilani

PC

1361

Puneshottam C.

Sangmeshwar Kandre (Guest)

9:33 AM 4/11/2022

Simulation & Implementation of Project on Arduino Platform

Request control

Recording and transcription have started. By attending this meeting, you consent to being included. [Privacy policy](#)

Participants

Type a name

Share invite

Presenters (0)

Attendees (17)

1007_Henry

1009_Henry

1011_Henry

1022_Henry

1040_Henry

Industry / Robot / System

Input

Industry / System

Output

ON

OFF

Figure 01-01

Copyright © 2008 Pearson Prentice Hall, Inc.

Programmer = Data + Algorithms

BITS Pilani

PC

1372

Puneshottam C.

Sangmeshwar Kandre (Guest)

9:33 AM 4/11/2022



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Simulation & Implementation of Project on Arduino Platform

27:36

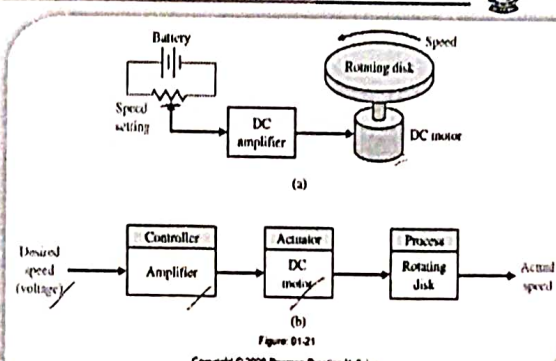
Request control

People Chat Reactions Rooms More Camera Mic Share Leave

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Diagnose

Open loop system



(a)

(b)

Figure 01-21
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BTS Pilani

Sangmeshwar Kendre (Guest)

BTS Pilani, Deemed to be University under Section 3, UGC Act - IoT in Manufacturing

PC +175

01:11 AM 4/11/2022

Simulation & Implementation of Project on Arduino Platform

59:49

Request control

People Chat Reactions Rooms More Camera Mic Share Leave

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Diagnose

1) Blink the LED - 1 sec

Digital I/O

Digital output

C language

Cross C compile

Arduino

MC

Machine language

BTS Pilani

Sangmeshwar Kendre (Guest)

BTS Pilani, Deemed to be University under Section 3, UGC Act - IoT in Manufacturing

PC +192

10:07 AM 4/11/2022



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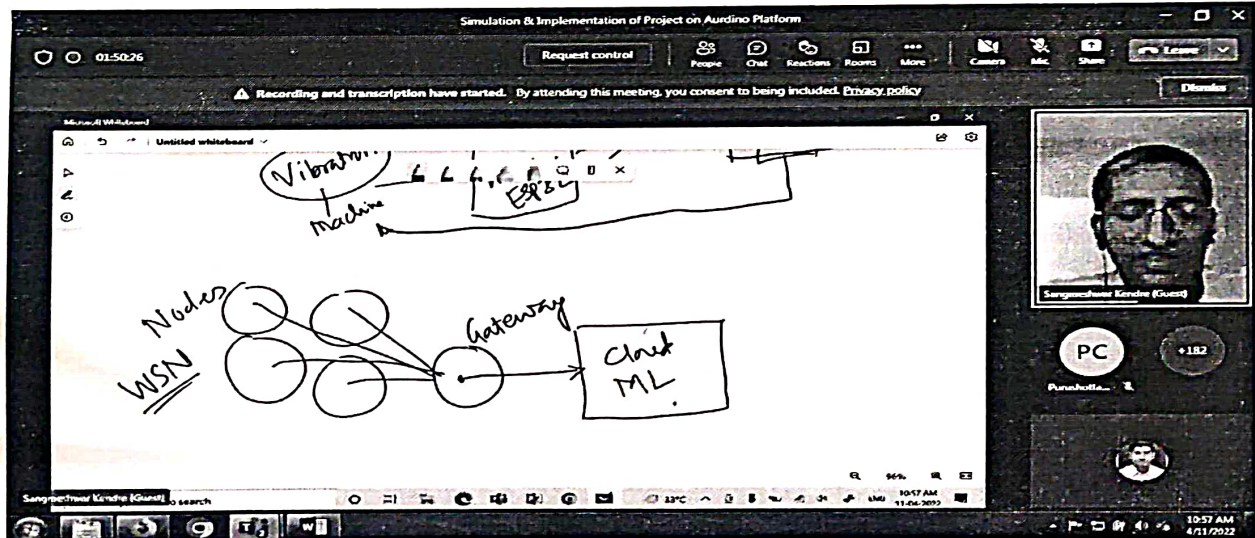
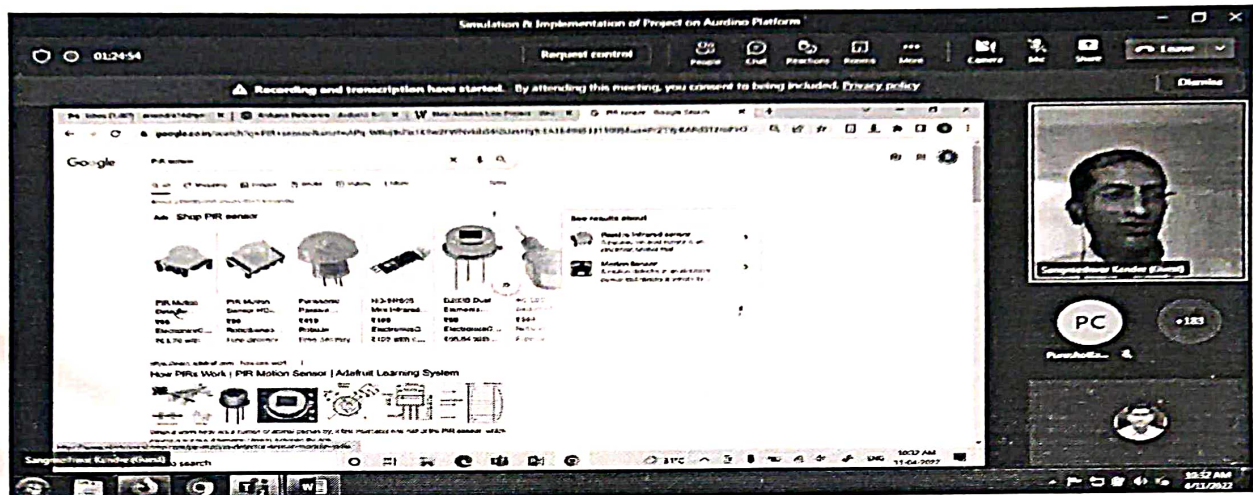
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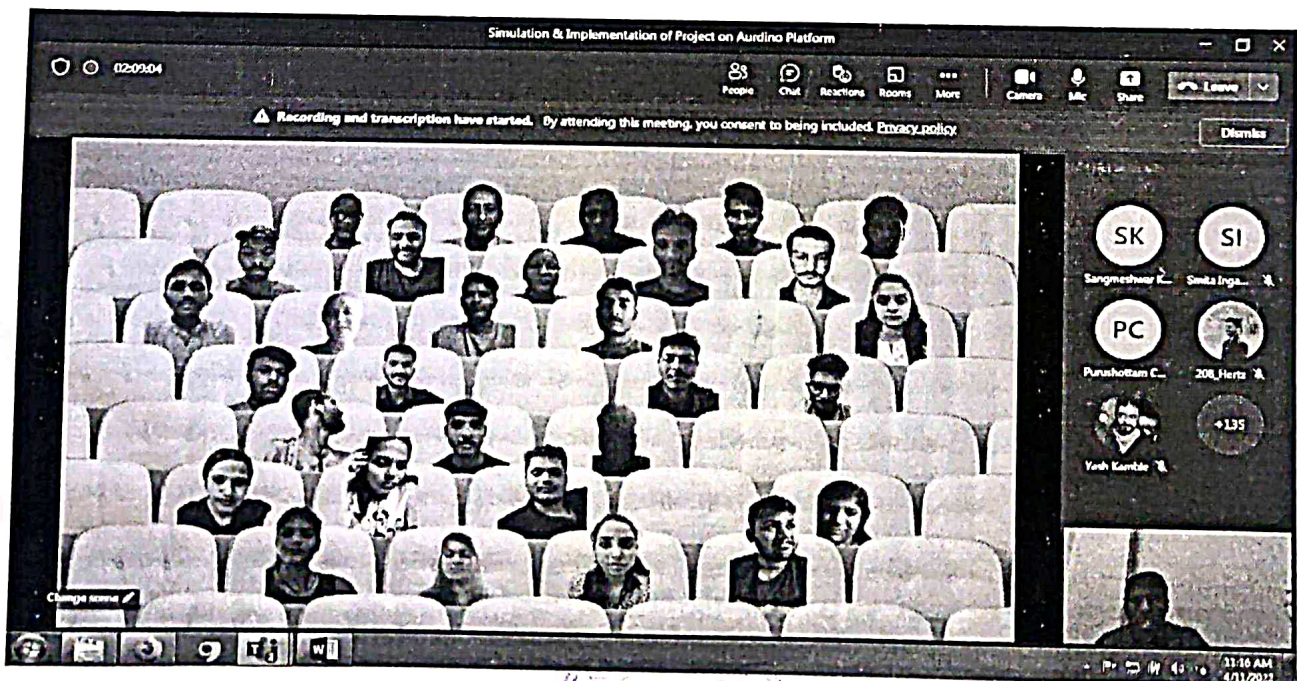
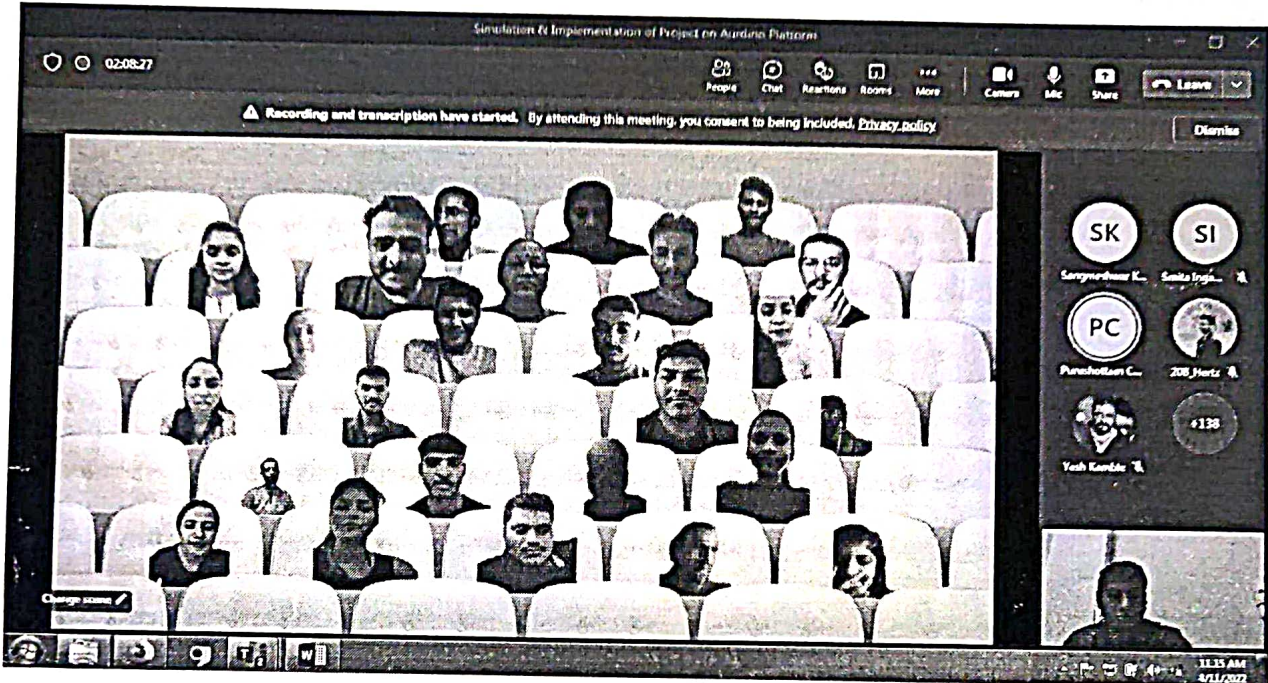
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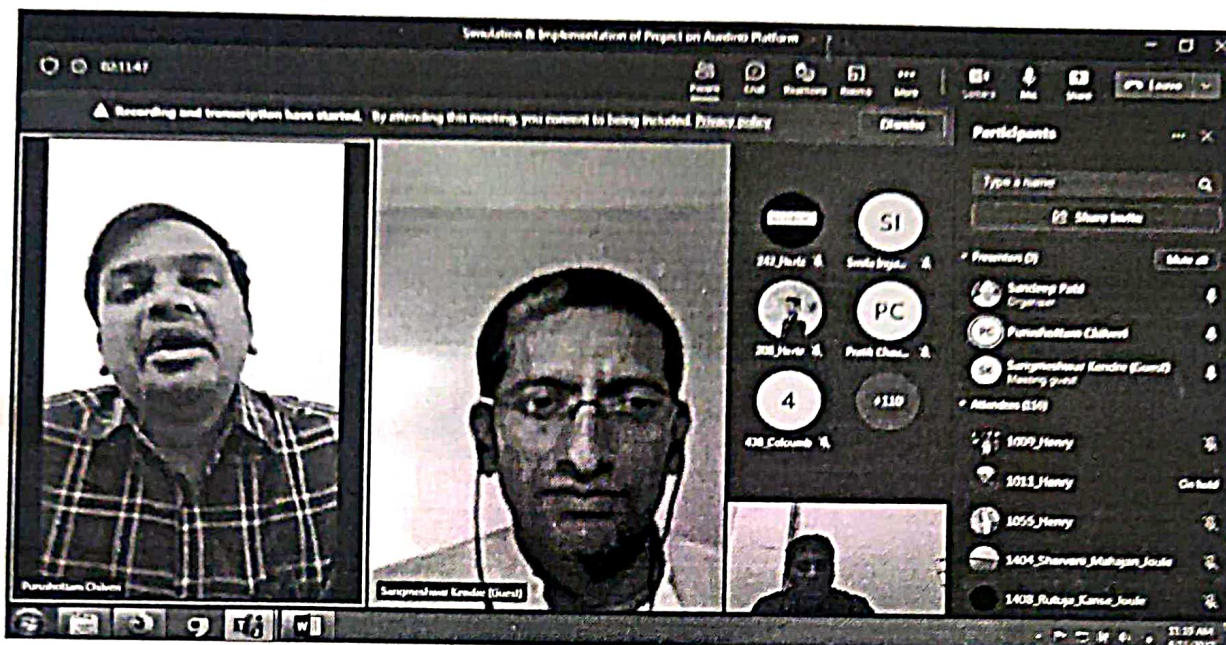
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STES's

Smt. Kashibai Navale College of Engineering, Pune

Department: Electronics & Telecommunication

Guest Lecture Report

Date:	06/10/2021	Time:	11:15 am onwards
Venue:	Online		
Title of Program:	Guest lecture on "The Blueprint of Success for Youth"		
Speaker/Guest:	Mr.Raghvan Koli		
Company Name:	-		
Class:	TE(E&TC)		
Total no. of Student:	221		
Program Co-coordinator:	Prof. V.A. Yaduvanshi		

About program:

Following points were covered in the Guest lecture:

- 1)Hardwork is the key to success
- 2)Discussion on the upcoming opportunities

Mr.Raghvan Koli motivated the students through the upcoming opportunities. There is a formula for success that if followed will help guide us towards the achievement of our objective. Failure doesn't mean you are not succeeded, but it's the first step to success. He guided us along the right path and it helped to develop empowering daily habits that will instill necessary patterns of behavior to assist us along our journey towards our goals and objectives.

Program Outcome:

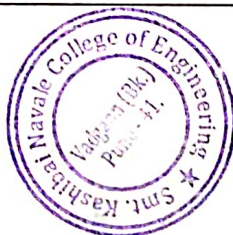
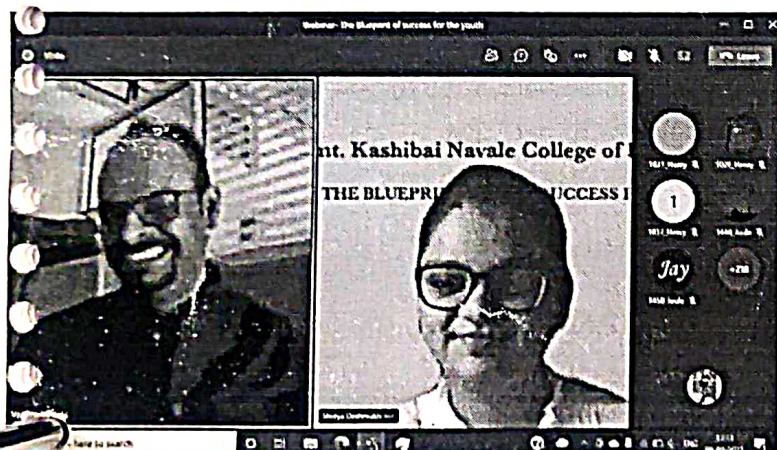
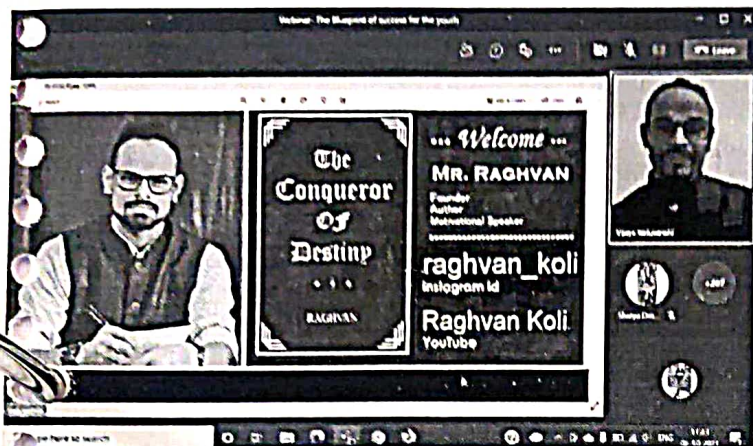
Students got motivated a lot and had cleared their doubts.



Agarwal
Head

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Program Event Photos:



Vijays

Prof. Vijaya A. Yaduvanshi
Program Co-ordinator

Jagtap

Dr. S. K. Jagtap
HOD, E&TC

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Smt. Kashibai Navale College of Engineering, Pune**Department: Electronics & Telecommunication****Webinar Report**

Date:	02/02/2022	Time:	11am- 12:30pm
Venue:	Online		
Title of Program:	Industrial Automation		
Speaker/Guest:	Mr. Tejas Dixit		
Company Name:	CADCAMGURU Solution		
Class:	TE(E&TC)		
Total no. of Student:	70		
Program Co-coordinator:	Prof. V.A. Yaduvanshi		

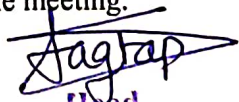
About program:

Following points were covered in the Webinar:

- 1) Importance of learning software used in Industries
- 2) Deep knowledge about CAD and CAM
- 3) Different career opportunities for students in Industrial Automation
- 4) Different certifications in the field
- 6) Discussion on working of the industries all over.

Mr Tejas Dixit set the light on various pathways to foster the brilliant vocation in the field of Industrial Automation. He gave the various approaches to learning the CAD and CAM planning . He gave the total data and pathways in the field. .Online class merited joining in, and members got to know different parts of setting up their profession in the recorded. Question/Answer meeting was intelligent the Resource individual tackled every one of the questions of members toward the finish of the meeting.

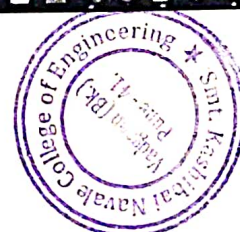
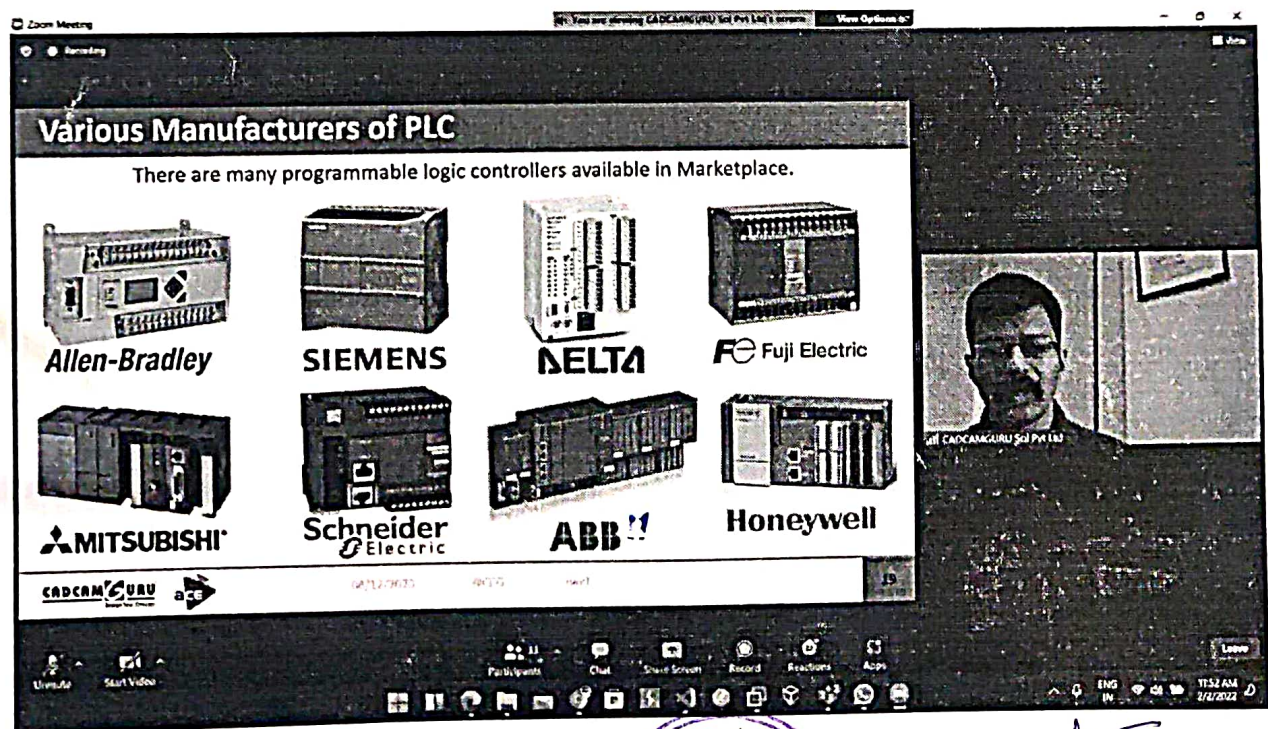
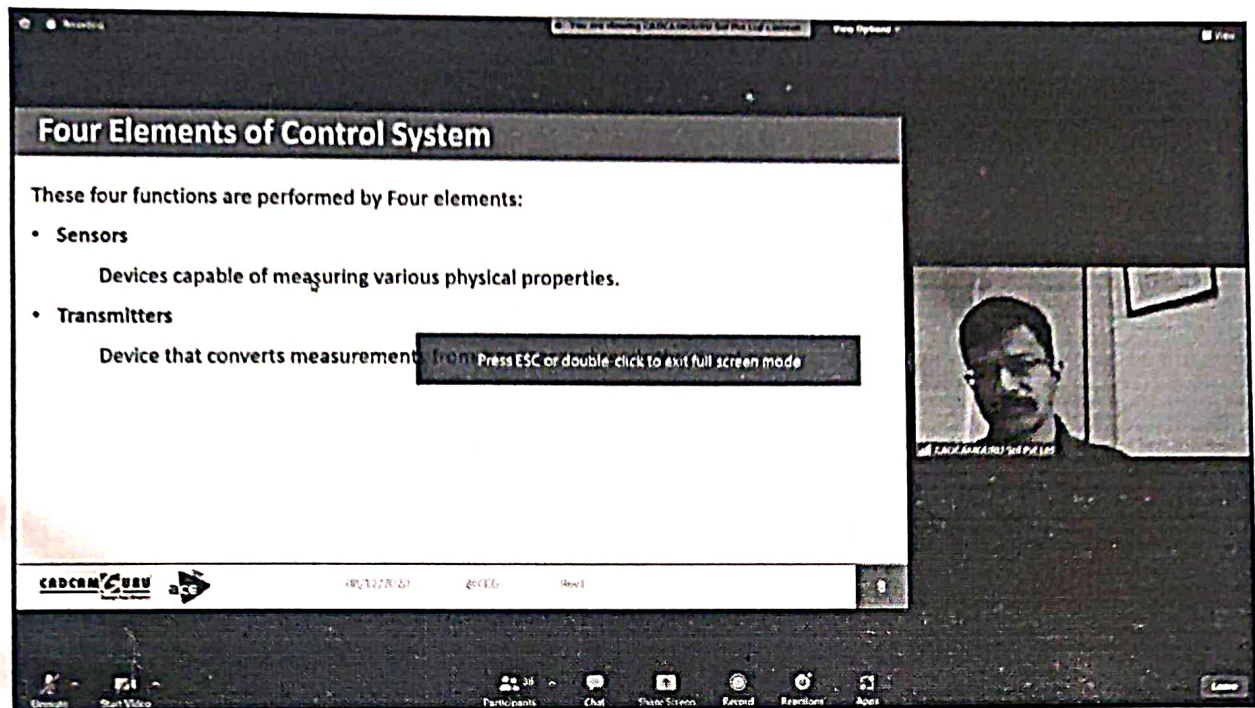



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Program Outcome:

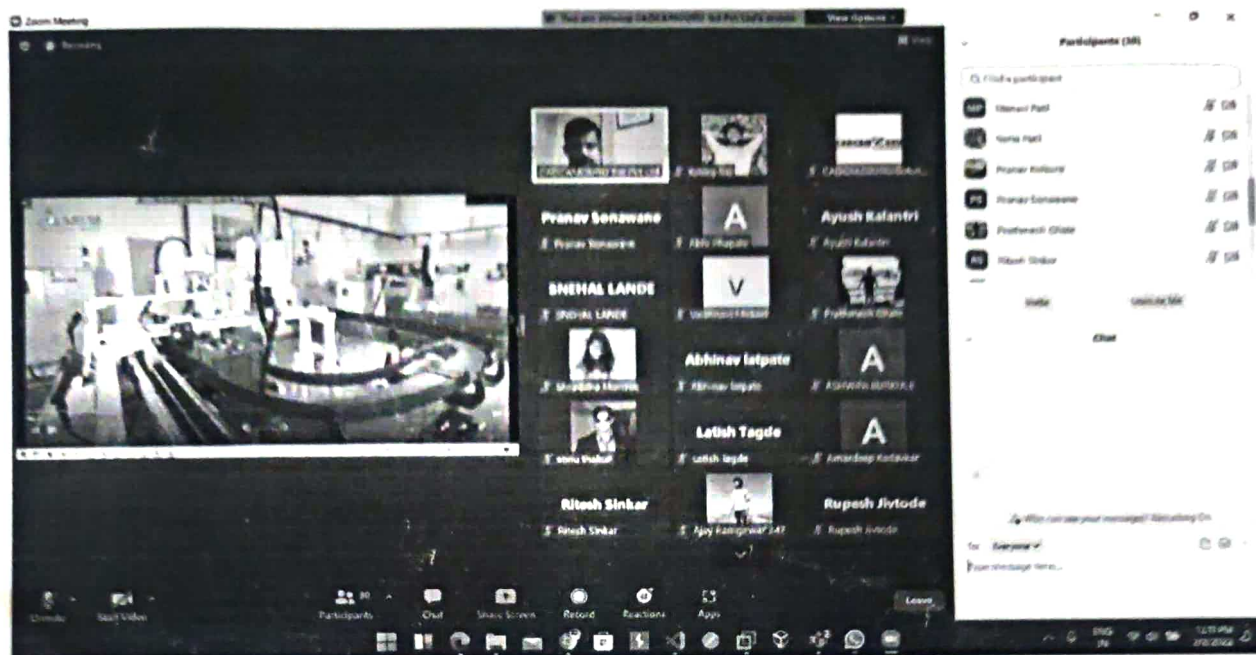
Students got a clear view about the Industrial Automation and exciting career opportunities in it

Program Event Photos:



Stagrap

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Vijays

Prof. Vijaya A. Yaduvanshi
Program Co-ordinator



Jagtap

Dr. S. K. Jagtap
HOD, E&TC

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Department of Mechanical Engineering

Criteria I

1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

Index					
Sr. No	Academic Year	Class	Pattern	w.e.f.	Description
1	2021-22	S.E.	2019	2021-22	Technical English For Engineers
2					Entrepreneurship Development
3					Developing soft skills and personality
4					Foreign Language (preferably German/ Japanese)
5					Science, Technology and Society
6					Project based Learning II
7					Language & Mind Emotional Intelligence
8					Human Behavior
9					Speaking Effectively




Prof. T. S. Sargar

HOD, Mech

Assistant Professor & Head
Dept. of Mechanical Engg.,
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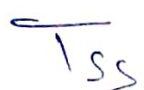
Department of Mechanical Engineering

Criteria I

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Index					
Sr. No	Academic Year	Class	Pattern	w.e.f.	Description
1	2021-22	T.E.	2019	2021-22	Skill Development
2					Entrepreneurship and IP strategy
3					Engineering Economics
4					Management of Inventory Systems
5					Internship/Mini project
6					Business and Sustainable Development
7					Management Inventory System
8					International Business




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Sinhgad Institutes

1.3.1

Sinhgad Technical Education Society's
Smt. Kashibai Navale College of Engineering, Pune – 41

Department of Mechanical Engineering

Criteria I

1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

Index					
Sr. No	Academic Year	Class	Pattern	w.e.f.	Description
1	2021-22	B.E.	2015	2017-18	Energy Audit and Management (Elective II)
2					Project Phase-I
3					Industrial Engineering
4					Project Phase-II




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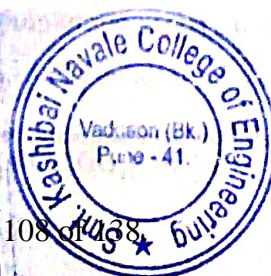
Smt. Kashibai Navale College of Engineering, Pune
Department of Mechanical Engineering

1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

1. List of the courses that address crosscutting issues:-

Mechanical Engineering

Sr. No.	Core courses	Course No	Course Name
1	SE Mechanical Engineering (2019)	202046	Technical English For Engineers
2	SE Mechanical Engineering (2019)	202046	Entrepreneurship Development
3	SE Mechanical Engineering (2019)	202046	Developing soft skills and personality
4	SE Mechanical Engineering (2019)	202046	Foreign Language (preferably German/ Japanese)
5	SE Mechanical Engineering (2019)	202046	Science, Technology and Society
6	SE Mechanical Engineering (2019)	202052	Project based Learning II
7	SE Mechanical Engineering (2019)	202053	Language & Mind Emotional Intelligence
8	SE Mechanical Engineering (2019)	202053	Human Behavior
9	SE Mechanical Engineering (2019)	202053	Speaking Effectively
10	TE Mechanical Engineering (2019)	302047	Skill Development
11	TE Mechanical Engineering (2019)	302048	Entrepreneurship and IP strategy
12	TE Mechanical Engineering (2019)	302048	Engineering Economics
13	TE Mechanical Engineering (2019)	302048	Management of Inventory Systems
14	TE Mechanical Engineering (2019)	302055	Internship/Mini project
15	TE Mechanical Engineering (2019)	302056	Business and Sustainable Development
16	TE Mechanical Engineering (2019)	302056	Management Inventory System
17	TE Mechanical Engineering (2019)	302056	International Business
18	BE Mechanical Engineering (2015)	402045	Energy Audit and Management (Elective II)
19	BE Mechanical Engineering (2015)	402046	Project Phase-I



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Department of Mechanical Engineering

20	BE Mechanical Engineering (2015)	402049	Industrial Engineering
21	BE Mechanical Engineering (2015)	402051	Project Phase-II

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Smt. Kashibai Navale College of Engineering, Pune
Department of Mechanical Engineering

2. Description of courses which address the crosscutting issues

Mechanical Engineering

Core courses	Course Number	Course Name	Cross- cutting issue	Description of course
SE Mechanical Engineering (2019)	202046	Technical English For Engineers	Professional ethics	The course covers all the areas of grammar necessary for the undergraduate students of engineering sciences. This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments and can also be used as an add-on to classroom teaching.
SE Mechanical Engineering (2019)	202046	Entrepreneurship Development	Human Values, Ethics, Environment and Sustainability	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
SE Mechanical Engineering (2019)	202046	Developing soft skills and personality	Professional ethics	The course aims to cause an enhanced awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve excellence, and derive fulfilment and supreme joy. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness, and effective communication skills.



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Department of Mechanical Engineering

SE Mechanical Engineering (2019)	202046	Foreign Language (preferably German/ Japanese)	Human values, Professional ethics	Japanese Language has been taught as part of the Foreign Language Programme at IIT Kanpur since July 1995. With increasing technical and economic ties between India and Japan, more Japanese companies are doing business in India and vice versa. This gives rise to the urgent need for more Indians to learn at least the rudiments of Japanese for their professional advancement. This course has been designed with the above background and keeping in mind the requirements of Level's 5 of the 'Japanese Language Proficiency Test', held by Japan Foundation. It focuses on conversational skills and basic training in sentence construction, simple situational conversation, grammatical knowledge and elements of Kanji (Chinese pictograms), and the kana (Katakana and Hiragana) scripts
SE Mechanical Engineering (2019)	202046	Science, Technology and Society	Human Values, Environment and Ecology, Ethical values, Sustainability	Science, Technology & Society enhances student's understanding of the way in which advances in science and technology influence society and vice versa.
SE Mechanical Engineering (2019)	202052	Project based Learning II	Professional ethics, Human values.	This course teaches the students to emphasize project based learning activities that are long-term, interdisciplinary and student-centric. To inculcate independent and group learning by solving real world problems with the help of available resources. To be able to develop applications based on the fundamentals of mechanical engineering by possibly applying previously acquired knowledge. To get practical experience in all steps in the life cycle of the development of mechanical systems: specification, design, implementation, and testing.



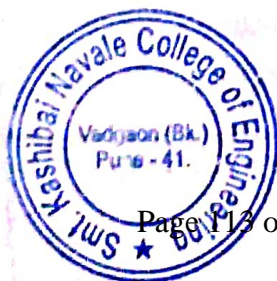
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Department of Mechanical Engineering

SE Mechanical Engineering (2019)	202053	Language & Mind Emotional Intelligence	Professional ethics	In addition to credits courses, it is mandatory that there should be an audit course (non-credit course) from the second year of Engineering. The student may opt for two of the audit courses (One in each semester). Such audit courses can help the student to get awareness of different issues which make an impact on human lives and enhance their skill sets to improve their employability
SE Mechanical Engineering (2019)	202053	Human Behavior	Human Values and Sustainability	Human behavior describes the way humans act and interact. It is based on and influenced by several factors, such as genetic make-up, culture and individual values and attitudes.
SE Mechanical Engineering (2019)	202053	Speaking Effectively	Social Values, Professional Ethics, Sustainability	This course aims to introduce students to the dynamics of effective spoken communication by establishing speaking as an autonomous medium with a distinctive vocabulary, syntax, structure, style and register. It will enable learners to participate in one-to-one interactions, in small groups and before a group. Learners are expected to master the fundamentals of speaking such as vocabulary, body language, pronunciation, and basic conversation skills before they move on to more advanced activities such as appearing in interviews, making formal presentations and participating in meetings.
TE Mechanical Engineering (2019)	302047	Skill Development	Professional ethics	To create the awareness among students to follow the professional ethics, avoid the plagiarism.
TE Mechanical Engineering (2019)	302048	Entrepreneur ship and IP strategy	Professional ethics, Human values.	This course will help in developing the awareness and interest in entrepreneurship and create employment for others. Students get familiar with the characteristics and motivation of successful entrepreneurs. Students learn



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Department of Mechanical Engineering

				how to identify and refine market opportunities, how to secure financing, how to develop and evaluate business plans and manage strategic partnerships. Intellectual property rights creates the awareness about new innovative ideas and also refers to the rights which are attached to the creation of the mind and which take the form of property
TE Mechanical Engineering (2019)	302048	Engineering Economics	Professional ethics	To create the awareness among students to follow the professional ethics.
TE Mechanical Engineering (2019)	302048	Management of Inventory Systems	Professional ethics, Human values.	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations.
TE Mechanical Engineering (2019)	302055	Internship/ Mini project	Professional ethics, Human values.	This course teaches the students to have ideology of the industrial project. Hands on working with tools, tackles and machines. To carry out literature survey To do brain storming for mechanical engineering system
TE Mechanical Engineering (2019)	302056	Business and Sustainable Development	Professional ethics	To create the awareness among students to follow the professional ethics. Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that



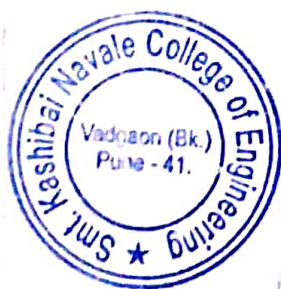
Smt. Kashibai Navale College of Engineering, Pune
Department of Mechanical Engineering

				influence the working environment of industrial organizations
TE Mechanical Engineering (2019)	302056	Management Inventory System	Professional ethics, Human values.	Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations
TE Mechanical Engineering (2019)	302056	International Business	Professional ethics	To create the awareness among students to follow the professional ethics. Core objective of this course is to expose technical students to the industrial environment, which cannot be simulated/experienced in the classroom and hence creating competent professionals in the industry and to understand the social, economic and administrative considerations that influence the working environment of industrial organizations
BE Mechanical Engineering (2015)	402045	Energy Audit and Management (Elective II)	Professional ethics, environment and sustainability	Significance of Waste heat recovery and Cogeneration. Energy Audit of the residence / society / college where students are studying. - Carry out electrical tariff calculation and accurately predict the electricity bill required for the installation. - Suggest various methods to reduce energy consumption of the equipment / office / premises
BE Mechanical Engineering (2015)	402046	Project Phase-I	Professional ethics.	This course teaches the students to have ideology of the industrial project. Hands on working with tools, tackles and machines. To carry out literature survey To do brain storming for mechanical engineering system



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Department of Mechanical Engineering

BE Mechanical Engineering (2015)	402049	Industrial Engineering	Professional ethics, Human values.	This course teaches the students to apply the Industrial Engineering concept in the industrial environment, Manage and implement different concepts involved in methods study and understanding of work content in different situations, Undertake project work based on the course content, Describe different aspects of work system design and facilities design pertinent to manufacturing industries, Identify various cost accounting and financial management practices widely applied in industries, Develop capability in integrating knowledge of design along with other aspects of value addition in the conceptualization and manufacturing stage of various products
BE Mechanical Engineering (2015)	402051	Project Phase-II	Professional ethics, Human values.	This course teaches the students to have ideology of the industrial project. Hands on working with tools, tackles and machines. To carry out literature survey To do brain storming for mechanical engineering system



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Savitribai Phule Pune University
Board of Studies - Automobile and Mechanical Engineering
Undergraduate Program - Automobile Engineering & Mechanical Engineering (2019 pattern)

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	TOTAL	TH	PR	TUT	TOTAL
Semester-III														
202041	Solid Mechanics	4	2	-	30	70	-	50	-	150	4	1	-	5
202042	Solid Modeling and Drafting	3	2	-	30	70	-	50	-	150	3	1	-	4
202043	Engineering Thermodynamics	3	2	-	30	70	-	-	25	125	3	1	-	4
202044	Engineering Materials and Metallurgy	3	2	-	30	70	25	-	-	125	3	1	-	4
203156	Electrical and Electronics Engineering	3	2	-	30	70	25	-	-	125	3	1	-	4
202045	Geometric Dimensioning and Tolerancing Lab	-	2	-	-	-	25	-	-	25	-	1	-	1
202046	Audit Course - III	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	16	12	-	150	350	75	100	25	700	16	6	-	22
Semester-IV														
207002	Engineering Mathematics - III	3	-	1	30	70	25	-	-	125	3	-	1	4
202047	Kinematics of Machinery	3	2	-	30	70	-	-	25	125	3	1	-	4
202048	Applied Thermodynamics	3	2	-	30	70	-	-	25	125	3	1	-	4
202049	Fluid Mechanics	3	2	-	30	70	-	-	25	125	3	1	-	4
202050	Manufacturing Processes	3	-	-	30	70	-	-	-	100	3	-	-	3
202051	Machine Shop	-	2	-	-	-	50	-	-	50	-	1	-	1
202052	Project Based Learning - II	-	4	-	-	-	50	-	-	50	-	2	-	2
202053	Audit Course - IV	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	15	12	1	150	350	125	-	75	700	15	6	1	22
Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral														
Note: Interested students of SE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by BoS (Automobile and Mechanical Engineering)														
Instructions														
<ul style="list-style-type: none">• Practical/Tutorial must be conducted in three batches per division only.• Minimum number of required Experiments/Assignments in PR/ Tutorial shall be carried out as mentioned in the syllabi of respective subjects.• Assessment of tutorial work has to be carried out as a term-work examination. Term-work Examination at second year of engineering course shall be internal continuous assessment only.• Project based learning (PBL) requires continuous mentoring by faculty throughout the semester for successful completion of the tasks selected by the students per batch. While assigning the teaching workload of 2 Hrs/week/batch needs to be considered for the faculty involved. The Batch needs to be divided into sub-groups of 5 to 6 students. Assignments / activities / models/ projects etc. under project based learning is carried throughout semester and Credit for PBL has to be awarded on the basis of internal continuous assessment and evaluation at the end of semester.• Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at institute level. Grade awarded for audit course shall not be calculated for grade point & CGPA.														

Savitribai Phule Pune University
Board of Studies - Automobile and Mechanical Engineering
Undergraduate Program - Mechanical Engineering (2019 pattern)

Course Code	Course Name	Teaching Scheme (Hrs./week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
Semester-V														
302041	Numerical & Statistical Methods	3	-	1	30	70	25	-	-	125	3	-	1	4
302042	Heat & Mass Transfer	3	2	-	30	70	-	50	-	150	3	1	-	4
302043	Design of Machine Elements	3	2	-	30	70	-	-	25	125	3	1	-	4
302044	Mechatronics	3	2	-	30	70	-	-	25	125	3	1	-	4
302045	Elective I	3	-	-	30	70	-	-	-	100	3	-	-	3
302046	Digital Manufacturing Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302047	Skill Development	-	2	-	-	-	25	-	-	25	-	1	-	1
302048	Audit course - V ^s	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	15	10	1	150	350	100	50	50	700	15	5	1	21
Semester-VI														
302049	Artificial Intelligence & Machine Learning	3	2	-	30	70	-	-	25	125	3	1	-	4
302050	Computer Aided Engineering	3	2	-	30	70	-	50	-	150	3	1	-	4
302051	Design of Transmission Systems	3	2	-	30	70	-	-	25	125	3	1	-	4
302052	Elective II	3	-	-	30	70	-	-	-	100	3	-	-	3
302053	Measurement Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302054	Fluid Power & Control Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302055	Internship/Mini project *	-	4	-	-	-	100	-	-	100	-	4	-	4
302056	Audit course - VI ^s	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	12	14	-	120	280	200	50	50	700	12	9	-	21
Elective-I					Elective-II									
302045-A	Advanced Forming & Joining Processes				302052-A		Composite Materials							
302045-B	Machining Science & Technology				302052-B		Surface Engineering							

Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral

Note: Interested students of TE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by BOS (Automobile and Mechanical Engineering)

Instructions:

- Practical/Tutorial must be conducted in FOUR batches per division only.
- Minimum number of Experiments/Assignments in PR/Tutorial shall be carried out as mentioned in the syllabi of respective courses.
- Assessment of tutorial work has to be carried out similar to term-work. The Grade cum marks for Tutorial and Term-work shall be awarded on the basis of continuous evaluation.
- *Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at institute level. Grade awarded for audit course shall not be calculated for grade point & CGPA.

Savitribai Phule Pune University

B. E. (Mechanical) (2015 Course) Semester – I

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits	
		Lecture	Tut	Pract	In Sem	End Sem	TW	PR	OR		Theory	TW/ Pr/OR
402041	Hydraulics and Pneumatics	3	-	2	30	70	25	-	25	150	3	1
402042	CAD CAM Automation	3	-	2	30	70	25	50	-	175	3	1
402043	Dynamics of Machinery	4	-	2	30	70	25	-	25	150	4	1
402044	Elective-I	3	-	2	30	70	25	-	-	125	3	1
402045	Elective-II	3	-	-	30	70	-	-	-	100	3	-
402046	Project-I	-	-	4	-	-	25	-	25	50	-	2
Total		16	-	12	150	350	125	50	75	750	16	6
											22	

B. E. (Mechanical) (2015 Course) Semester – II

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits	
		Lecture	Tut	Pract	In Sem	End Sem	TW	PR	OR		Theory	TW/ Pr/OR
402047	Energy Engineering	3	-	2	30	70	25	-	25	150	3	1
402048	Mechanical System Design	4	-	2	30 (1.5 Hrs)	70 (3 Hrs)	25	-	50	175	4	1
402049	Elective-III	3	-	2	30	70	25	-	-	125	3	1
402050	Elective-IV	3	-	-	30	70	-	-	-	100	3	-
402051	Project-II	-	-	12	-	-	100	-	100	200	-	6
Total		13	-	18	120	280	175	-	175	750	13	9
											22	

Elective – I		Elective – II	
Code	Subject	Code	Subject
402044 A	Finite Element Analysis	402045 A	Automobile Engineering
402044 B	Computational Fluid Dynamics	402045 B	Operation Research
402044 C	Heating Ventilation and Air Conditioning	402045 C	Energy Audit and Management
		402045 D	Open Elective**

Elective – III		Elective – IV	
Code	Subject	Code	Subject
402049 A	Tribology	402050 A	Advanced Manufacturing Processes
402049 B	Industrial Engineering	402050 B	Solar & Wind Energy
402049 C	Robotics	402050 C	Product Design and Development
		402050 D	Open Elective**



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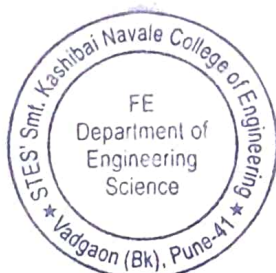
Department of Engineering Sciences

Criteria I

1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human values, Environment and Sustainability into the Curriculum.

Index

Sr. No.	Description
1	List of the courses that address crosscutting issues
2	Description of courses which address the crosscutting issues
3	Link for the relevant documents




Prof. M. S. Alandkar

HOD, Engineering Sciences

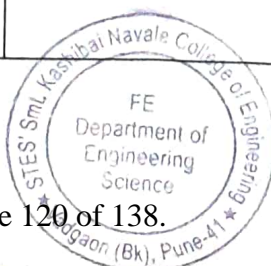
Head of Department
Engineering Science Department
Smt. Kashibai Navale College
of Engineering, Vadgaon, Pune - 41.

1. List of the courses that address crosscutting issues

Sr. No.	Year	Core Course	Particular	Subject Code
1	2021-22	F.E. Common	Environmental studies-I	101007
2		F.E. Common	Environmental studies-II	101014
3		F.E. Common	Project Based Learning	110013
4		F.E. Common	Democracy, Election and Governance	NA

2. Description of courses which address the crosscutting issues

Core Course	Course No.	Course Name	crosscutting issues	Description of course
F.E. Common	NA	Democracy, Election and Governance	Gender, Human values, Professional ethics	This course helps students to learn about democracy, constitution of India, evolution and various dimensions of democracy, various challenges of caste, gender, class and ethnicity. Meaning, role and various forms of government which helps them to understand various crosscutting issues.
	101007	Environmental studies-I	Human Values, Environment and Sustainability	This course highlights on knowledge about concepts and strategies related to sustainable development and various components of environment. Also creates awareness and gives information related to biotic and abiotic factors within an ecosystem, to identify food chains, energy flow and relationships. This course enhances ability to understand the value of biodiversity and current efforts to conserve biodiversity on national and local scale.



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Engineering Science Department
Smt. Kashibai Navale College
of Engineering

	101014	Environmental studies-II	Human Values, Environment and Sustainability	This course highlights on comprehensive overview of environmental pollution and the science and technology associated with the monitoring and control. To understand the evolution of environmental policies and laws. It also explain the concepts behind the interrelations between environment and the development. This course also examine a range of environmental issues in the field, and relate these to scientific theory.
F.E. Common	110013	Project Based Learning	Professional ethics, Human Values, Environment and Sustainability	This course enables students to emphasizes learning activities that are long-term, interdisciplinary and student-centric. Also it inculcates independent learning by problem solving with social context and to engages students in rich and authentic learning experiences. This course provide every student the opportunity to get involved either individually or as a group so as to develop team skills and learn professionalism.

3. Link for the relevant documents

Sr. No.	File Description	Link to Open
1	List and description of courses which address the Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum.	

(Signature)

Head of Department
Engineering Science Department
Smt. Kashibai Navale College
of Engineering, Vadgaon, Pune - 41.

Savitribai Phule Pune University, Pune
For All faculties

2 credit Compulsory course for all the First Year students in All
Faculties
Democracy, Election and Governance

Objectives:

1. To introduce the students meaning of democracy and the role of the governance
2. To help them understand the various approaches to the study of democracy and governance

Module 1 Democracy- Foundation and Dimensions

- a. Constitution of India
- b. Evolution of Democracy- Different Models
- c. Dimensions of Democracy- Social, Economic, and Political

Module 2 Decentralization

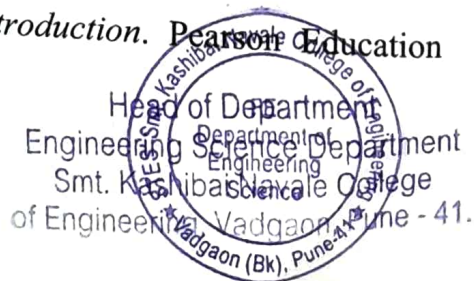
- a. Indian tradition of decentralization
- b. History of panchayat Raj institution in the post independence period
- c. 73rd and 74th amendments
- d. Challenges of caste, gender, class, democracy and ethnicity

Module 3 Governance

- a. Meaning and concepts
- b. Government and governance
- c. Inclusion and exclusion

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मराठी संदर्भ ग्रंथ:

१. राही श्रुती गणेश., आवटे श्रीरंजन, (२०१९), '*आपलं आयकार्ड*', सुहास पळशीकर द युनिक अकॅडमी पब्लिकेशन प्रा.लि.,.
२. व्होरा राजेंद्र., पळशीकर, सुहास.(२०१४). *भारतीय लोकशाही अर्थ आणि व्यवहार*. पुणे : डायमंड प्रकाशन.
३. सुमंत, यशवंत.(२०१८). *प्रा. यशवंत सुमंत यांची तीन भाषणे*. पुणे : युनिक अकॅडमी पब्लिकेशन्स प्रा.लि
४. भोळे. भा.ल. (२०१५). *भारतीय गणराज्याचे शासन आणि राजकारण*. नागपूर: पिंपळापुरे बुक प्रकाशन
५. कसदे. रावसाहेब. (२०१०)डॉ. आंबेडकर आणि भारतीय राज्यघटना. पुणे: सुगावा प्रकाशन



TH:02 Hrs./week	101007: Environmental Studies-I (Mandatory Non-Credit Course)
Course Objectives: <ol style="list-style-type: none"> 1. To explain the concepts and strategies related to sustainable development and various components of environment. 2. To examine biotic and abiotic factors within an ecosystem, to identify food chains, webs, as well as energy flow and relationships. 3. To identify and analyze various conservation methods and their effectiveness in relation to renewable and nonrenewable natural resources. 4. To gain an understanding of the value of biodiversity and current efforts to conserve biodiversity on national and local scale. 	
Course Outcomes: On completion of the course, learner will be able to— CO1: Demonstrate an integrative approach to environmental issues with a focus on sustainability. CO2: Explain and identify the role of the organism in energy transfers in different ecosystems. CO3: Distinguish between and provide examples of renewable and nonrenewable resources & analyze personal consumption of resources. CO4: Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.	
Course Contents	



Unit I	Introduction to environmental studies	(02 Hrs)
Multidisciplinary nature of environmental studies; components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance; Concept of sustainability and sustainable development.		
Unit II	Ecosystems	(06 Hrs)
What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: foodchain, food web and ecological succession. Case studies of the following ecosystems:		
a) Forest ecosystem		
b) Grassland ecosystem		
c) Desert ecosystem		
d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)		
Unit III	Natural Resources: Renewable and Non-renewable Resources	(08 Hrs)
Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.		
Water: Use and over-exploitation of surface and ground water, floods droughts, conflicts overwater (international & inter-state).		
Heating of earth and circulation of air; air mass formation and precipitation.		
Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.		
Unit IV	Biodiversity and Conservation	(08 Hrs)
Levels of biological diversity: genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity; In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.		
Suggested Readings:		
1. Carson, R. 2002. Silent spring. Houghton Mifflin Harcourt.		
2. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.		
3. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.		
4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.		
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principals of Conservation Biology. Sunderland: Sinauer Associates, 2006.		
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339:36-37.		
7. McCully, P. 1996. Rivers no more: the environmental effects of dams (pp.29-64). ZedBooks.		
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.		



110013: Project Based Learning		
Teaching Scheme: PR: 04 Hrs/Week	Credits 02	Examination Scheme:PR : 50 Marks
<p>Preamble:</p> <p>For better learning experience, along with traditional classroom teaching and laboratory learning; project based learning has been introduced with an objective to motivate students to learn by working in group cooperatively to solve a problem.</p> <p>Project-based learning (PBL) is a student-centric pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems. Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge, or problem. It is a style of active learning and inquiry-based learning. (Reference: Wikipedia). Problem based learning will also redefine the role of teacher as mentor in learning process. Along with communicating knowledge to students, often in a lecture setting, the teacher will also to act as an initiator and facilitator in the collaborative process of knowledge transfer and development.</p>		
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To emphasizes learning activities that are long-term, interdisciplinary and student-centric. 2. To inculcate independent learning by problem solving with social context. 3. To engages students in rich and authentic learning experiences. 4. To provide every student the opportunity to get involved either individually or as a group so as to develop team skills and learn professionalism. 		



Course Outcomes:

CO1: Project based learning will increase their capacity and learning through shared cognition. **CO2:** Students able to draw on lessons from several disciplines and apply them in practical way. **CO3:** Learning by doing approach in PBL will promote long-term retention of material and replicable skill, as well as improve teachers' and students' attitudes towards learning.

Group Structure:

Working in supervisor/mentor –monitored groups. The students plan, manage and complete a task/project/activity which addresses the stated problem.

- There should be team/group of 5 -6 students
- A supervisor/mentor teacher assigned to individual groups

Selection of Project/Problem:

The problem-based project oriented model for learning is recommended. The model begins with the identifying of a problem, often growing out of a question or "wondering". This formulated problem then stands as the starting point for learning. Students design and analyze the problem within an articulated interdisciplinary or subject frame.

A problem can be theoretical, practical, social, technical, symbolic, cultural and/or scientific and grows out of students' wondering within different disciplines and professional environments. A chosen problem has to be **exemplary**. The problem may involve an interdisciplinary approach in both the analysis and solving phases.

By exemplarity, a problem needs to refer back to a particular practical, scientific, social and/or technical domain. The problem should stand as one specific example or manifestation of more general learning outcomes related to knowledge and/or modes of inquiry.

There are no commonly shared criteria for what constitutes an acceptable project. Projects vary greatly in the depth of the questions explored, the clarity of the learning goals, the content and structure of the activity.

- A few hands-on activities that may or may not be multidisciplinary
- Use of technology in meaningful ways to help them investigate, collaborate, analyze, synthesize and present their learning.
- Activities may include- Solving real life problem, investigation /study and Writing reports of in depth study, field work.

Assessment:

The institution/head/mentor is committed to assessing and evaluating both student performance and program effectiveness.

Progress of PBL is monitored regularly on weekly basis. Weekly review of the work is necessary. During process of monitoring and continuous assessment AND evaluation the individual and team performance is to be measured. PBL is monitored and continuous assessment is done by supervisor

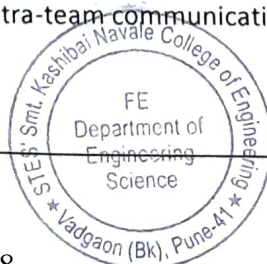
/mentor and authorities.

Students must maintain an institutional culture of authentic collaboration, self-motivation, peer- learning and personal responsibility. The institution/department should support students in this regard through guidance/orientation programs and the provision of appropriate resources and services.

Supervisor/mentor and Students must actively participate in assessment and evaluation processes.

Group may demonstrate their knowledge and skills by developing a public product and/or report and/or presentation.

- Individual assessment for each student (Understanding individual capacity, role and involvement in the project)
- Group assessment (roles defined, distribution of work, intra-team communication and togetherness)
- Documentation and presentation



Evaluation and Continuous Assessment:

It is recommended that all activities are to be recorded and regularly, regular assessment of work to be done and proper documents are to be maintained at college end by both students as well as mentor (you may call it PBL work book).

Continuous Assessment Sheet (CAS) is to be maintained by all mentors/department and institutes.

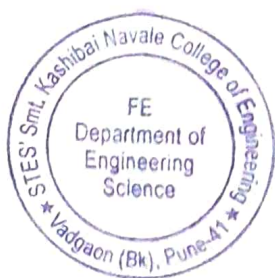
Recommended parameters for assessment, evaluation and weightage:

- Idea Inception **(5%)**
- Outcomes of PBL/ Problem Solving Skills/ Solution provided/ Final product **(50%)**
(Individual assessment and team assessment)
- Documentation (Gathering requirements, design & modeling, implementation/execution, use of technology and final report, other documents) **(25%)**
- Demonstration (Presentation, User Interface, Usability etc) **(10%)**
- Contest Participation/ publication **(5%)**
- Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects **(5%)**

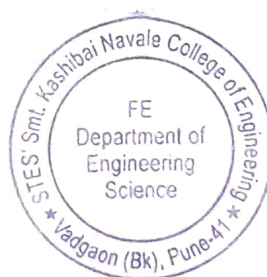
PBL workbook will serve the purpose and facilitate the job of students, mentor and project coordinator. This workbook will reflect accountability, punctuality, technical writing ability and work flow of the work undertaken.

References:

- Project-Based Learning, Edutopia, March 14, 2016.
- What is PBL? Buck Institute for Education.
- www.schoolology.com
- www.wikipedia.org
- www.howstuffworks.com



02 Hr/week	101014: Environmental Studies-IITH: Mandatory Non-Credit Course
Course Objectives: <ol style="list-style-type: none"> 1. To provide a comprehensive overview of environmental pollution and the science and technology associated with the monitoring and control. 2. To understand the evolution of environmental policies and laws. 3. To explain the concepts behind the interrelations between environment and the development. 4. To examine a range of environmental issues in the field, and relate these to scientific theory. 	
Course Outcomes: On completion of the course, learner will be able to– CO1: Have an understanding of environmental pollution and the science behind those problems and potential solutions. CO2: Have knowledge of various acts and laws and will be able to identify the industries that are violating these rules. CO3: Assess the impact of ever increasing human population on the biosphere: social, economic issues and role of humans in conservation of natural resources. CO4: Learn skills required to research and analyze environmental issues scientifically and learn how to use those skills in applied situations such as careers that may involve environmental problems and/or issues.	
Course Contents	
Unit V	Environmental Pollution (08 Hrs)
Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution Nuclear hazards and human health risks Solid waste management: Control measures of urban and industrial waste	



Pollution case studies.

Unit VI **Environmental Pollution** **(07 Hrs)**
Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities & agriculture. Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto Protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC). Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context

Unit VII **Human Communities and the Environment** **(06 Hrs)**
Human population and growth; Impacts on environment, human health and welfare. Carbon foot-print. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods earthquakes, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit VIII **Field work** **(05 Hrs)**

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
- Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river Delhi Ridge, etc

Suggested Readings:

1. Carson, R. 2002. Silent spring. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principals of Conservation Biology, Sunderland: Sinauer Associates, 2006
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339:36-37.
7. McCully, P. 1996. Rivers no more: the environmental effects of dams (pp.29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.





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1.3.1

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Department of Management Studies**

Criteria I

Curricular Aspects

Institutes Integrates Crosscutting Issues

Academic Year-2021-22

Sr.No	Academic Year	Class	Pattern	W.E.F	Description
1	2021-22	F.Y	2019	2021-22	Human Rights-I
2		F.Y			Cyber Security
3		S.Y			Human Rights-II
4		S.Y			Cyber Laws

Dr. Sachin Wankhede

HOD, MBA



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1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

Index

Sr. No.	Description	Page No.
1	List of the courses that address crosscutting issues	
2	Description of courses which address the crosscutting issues	
3	Link for the relevant documents	

1. List of the courses that address crosscutting issues

Computer Engineering

Sr. No.	Core Course	Course No.	Course Name
1	MBA	119	Human Rights-I&II
2	MBA	120	cyber security
3	MBA	407	Cyber Laws



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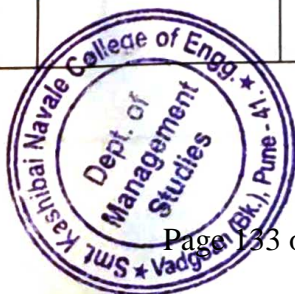
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2. Description of courses which address the crosscutting issues

Computer Engineering

Core Course	Course No.	Course Name	crosscutting issues	Description of course
MBA	119	Human Rights-I&II	Human rights, Professional ethics and gender equality	Conceptual perspectives play a significant role for the promotion and realization of human rights. It promotes dignity, tolerance, peace, defend and advocate for their rights.
MBA	120	cyber security	Human values and Professional ethics	Students understood the legal provisions of Information Technology Act, Case Law and practical ramifications of the Act through presentations.
MBA	407	Cyber Laws	Human values and Professional ethics	Cyber laws are becoming increasingly important in the curriculum as the use of digital technology continues to grow and shape various aspects of our lives. Here are a few ways in which cyber laws are important in the curriculum: <ol style="list-style-type: none"> 1. Digital literacy: Understanding cyber laws can help students become more digitally literate, which is essential in today's digital world. This includes knowing how to protect themselves and their personal information online, as well as understanding the legal implications of their online actions. 2. Career readiness: Many careers today




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				<p>require a basic understanding of cyber laws, such as those in the fields of technology, law enforcement, and business.</p> <p>3. Entrepreneurship: Entrepreneurs need to be aware of the legal implications of their business activities, including the use of digital technology. Understanding cyber laws can help students become more informed and responsible entrepreneurs.</p> <p>4. Social responsibility: Cyber laws can help students understand their responsibilities as digital citizens, including issues related to online privacy, data protection, and intellectual property.</p>
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3. Link for the relevant documents

Sr. No.	File Description	Link to Open
1	List and description of courses which address the Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum.	




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NOTICE

15.02.2022

All Students of MBA I & II are hereby informed that **Online Session on Introduction to Human Rights** is organized for MBA Batch 2021-23 & 2020-22 is being scheduled on **17.02.2022** from **11:00 AM to 01:00 PM**.

It is organized by SKNCOE MBA Dept & RMDSSOMS

Mode of Session: Virtual via Microsoft Teams


Students of All Specialization to attend the same.

Signed By


Dr. Sanket L. Charkha
Organizer & TPO



Signed By


Dr. Sachin R. Wankhede
Head of Department

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RMDSSOMS & SKNCOE – MBA Dept.
Jointly Organizes



Webinar on Human Rights

Speaker : Mr. Manoj Wagh, Director, Tech Trainers and Testers

Date
Friday, 17th Feb. 2022
02:00 PM to 05:00 PM

Dean & HoD
Dr. Swati Vijay
Dr. Sachin Wankhede

Director
Dr. V. V. Dixit
Dr. A.V. Deshpande



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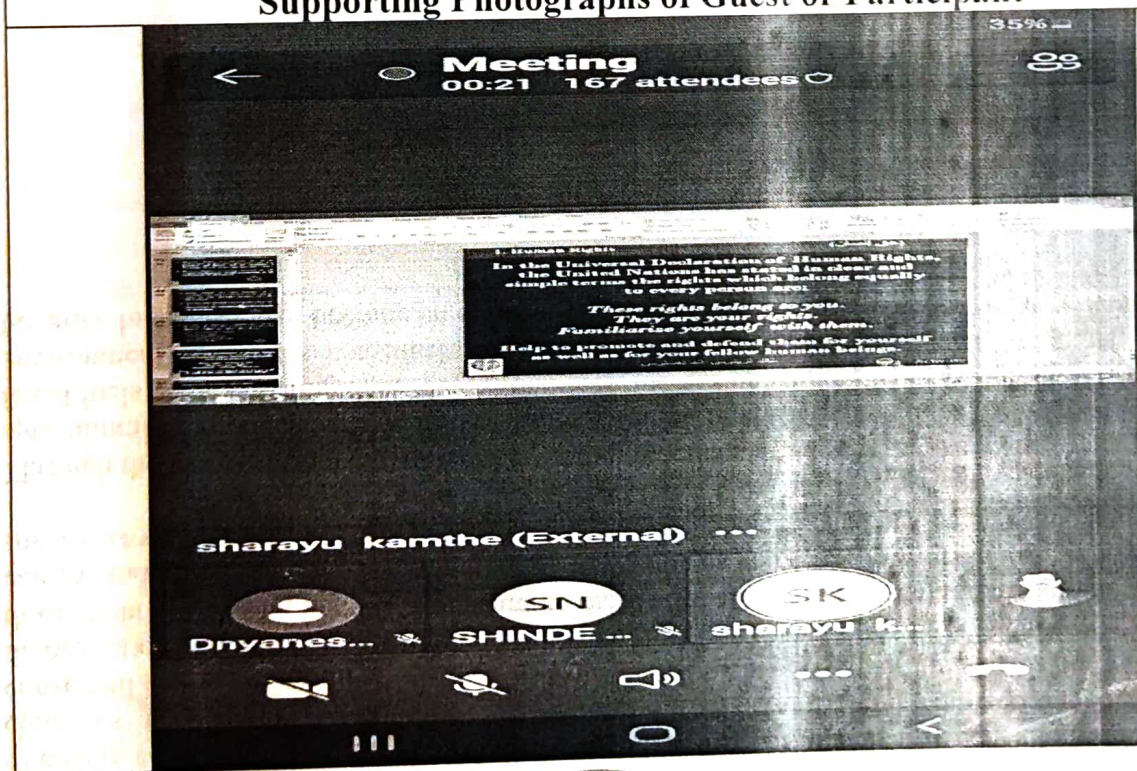


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Sr. No	Particulars	Description
1	Institute – Department	SKNCOE-MBA Dept.
2	Academic Year	A.Y. 2021 – 2022
3	Batch or Participants	MBA First & Second Year
4	Name of Event	Introduction to Human Rights
5	Date of Event	17.02.2022
6	Time of Event	11:00 AM to 01:00 PM
7	Venue	Microsoft Teams
8	Topic or Theme	Introduction to Human Rights
9	Faculty Coordinator	Dr. Sanket L. Charkha
10	Name & Profile of Guest	Mr Kanad Lahane Advocate Bar Council
11	Number of Participants	167

Supporting Photographs of Guest or Participant



Signed By

Dr. Sanket L. Charkha
Organizer



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Dr. Sachin R. Wankhede
HoD

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Suggested Text Books:

1. Managing Technology and Innovation for Competitive Advantage, V K Narayanan, Pearson Education.
2. Technology Management – Text and International Cases, Norma Harrison and Danny Samson, MGH.
3. Strategic Management of Technology & Innovation, Robert A Burgelman, Modesto A Maidique, Steven C Wheelwright, MGH International Edition.
4. Management of Technology – The Key to Competitiveness and Wealth Creation, Tarek Khalil and Ravi Shankar, TMGH, New Delhi.
5. Technology & Business Strategy – An Introduction, Edited by Prashanta Kumar Banerjee, ICAI books.

Suggested Reference Books:

1. Managing Strategic Innovation and Change – A Collection of Readings, Michael L Tushman and Philip Anderson, Oxford University Press.
2. Management of Technology and Innovation – Competing through Technological Excellence, P N Rastogi, Response Books.
3. Utterback, James. "Invasion of a Stable Business by Radical Innovation." Chapter 7 in Mastering the Dynamics of Innovation. Cambridge, MA: Harvard Business School Press, 1994. ISBN: 9780875843421.

Semester IV		407 – Cyber Laws
2 Credits	LTP: 2:0:0	Generic Elective – University Level

Course Outcomes: On successful completion of the course the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO407.1	Remembering	DEFINE the key terms and concepts pertaining to cyber laws.
CO407.2	Understanding	DESCRIBE the relevant legal provisions in detail.
CO407.3	Applying	DETERMINE the applicability of the legal provisions in a specific scenario.
CO407.4	Analyzing	OUTLINE the course of action in case of violation of the legal provisions.
CO407.5	Evaluating	EXPLAIN the various legal, social and international issues and the various remedies available under the Information Technology Act for the breach and commission of offence in cyber space

1. **Information Technology Act:** Evolution of the IT Act, Genesis and Necessity, Salient features of the IT Act, 2000; various authorities under IT Act and their powers; Penalties & Offences, amendments, Cyber Space Jurisdiction, Jurisdiction issues under IT Act, 2000. (5+1)
2. **E-commerce and Laws in India:** Digital/ Electronic Signature in Indian Laws, E-Commerce; Issues and provisions in Indian Law, E-Governance; concept and practicality in India, E-Taxation issues in Cyberspace, E-Contracts and its validity in India, Cyber Tribunal & Appellate Tribunal, Cyber Regulations. (5+1)
3. **Intellectual Property Rights:** Domain Names and Trademark Disputes, Concept of Trademark/ in Internet Era, Cyber squatting, Reverse Hijacking, Jurisdiction in Trademark Disputes, Copyright in the Digital Medium, Copyright in Computer Programmes, Copyright and WIPO Treaties, Concept of Patent Right, Relevant Provisions of Patent Act 1970. (5+1)
4. **Personal Data Security:** Sensitive Personal Data or Information (SPDI) in Cyber Law, SPDI Definition and Reasonable Security Practices in India, Reasonable Security Practices – International perspective, Cloud Computing & Law. (5+1)
5. **Cyber Law:** International Perspective, EDI : Concept and legal Issues, UNCITRAL Model Law, Electronic Signature Law's of Major Countries, Cryptography Laws, Cyber Law's of Major Countries, EU Convention on Cyber Crime. (5+1)

Suggested Text Books:

1. Cyber Law & Cyber Crimes by Advocate Prashant Mali, Snow White Publications, Mumbai
2. Cyber Law in India by Farooq Ahmad, Pioneer Books
3. Information Technology Law and Practice by Vakul Sharma, Universal Law Publishing Co. Pvt. Ltd
4. The Indian Cyber Law by Suresh T. Vishwanathan, Bharat Law House New Delhi

