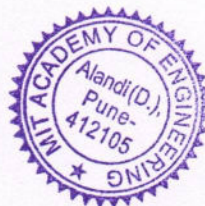# 1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

Dr. Mahesh D. Goudar
Director,
MITAoE, Alandi, Pune.

DIRECTOR
MIT Academy of Engineering
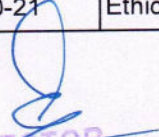Alandi (D.), Pune-412 105.

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Alandi, Pune 412105. (M.S.), India | Tel. : 020 3025 3500 / 600 / 700 | Fax : 020 3025 3799 | e-mail : principal@maepune.ac.in | Website : www.mitaoe.ac.in

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List of Courses addressing cross cutting Issues

S No	Name of the Program	Course Code	Name of the Course	Year of offering the course	Issues Addressed
1	B. Des- Communication Design	GFNDC108	Interdesign studies 1: rural environment exposure	2020-21	Environment and Sustainability
2	B. Des- Communication Design	GFNDC208	Inter design studies 2: Urban environment exposure	2020-21	Environment and Sustainability
3	B. Des- Product Design	GFNDC108	Interdesign studies 1: rural environment exposure	2020-21	Environment and Sustainability
4	B. Des- Product Design	GFNDC208	Inter design studies 2: Urban environment exposure	2020-21	Environment and Sustainability
5	B. Des- User Experience Design	GFNDC108	Interdesign studies 1: rural environment exposure	2020-21	Environment and Sustainability
6	B. Des- User Experience Design	GFNDC208	Inter design studies 2: Urban environment exposure	2020-21	Environment and Sustainability
7	B.Tech-Chemical Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
8	B.Tech-Chemical Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
9	B.Tech-Chemical Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
10	B.Tech-Chemical Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
11	B.Tech-Chemical Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics

12	B.Tech-Chemical Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
13	B.Tech-Chemical Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
14	B.Tech-Chemical Engineering	HP402	Sociology	2020-21	Gender Sensitivity
15	B.Tech-Civil Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
16	B.Tech-Civil Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
17	B.Tech-Civil Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
18	B.Tech-Civil Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
19	B.Tech-Civil Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
20	B.Tech-Civil Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
21	B.Tech-Civil Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
22	B.Tech-Civil Engineering	HP402	Sociology	2020-21	Gender Sensitivity
23	B.Tech-Computer Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional

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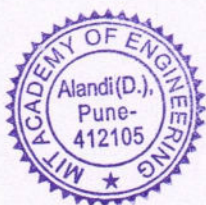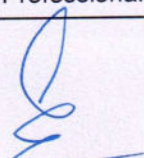|					Ethics
24	B.Tech-Computer Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
25	B.Tech-Computer Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
26	B.Tech-Computer Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
27	B.Tech-Computer Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
28	B.Tech-Computer Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
29	B.Tech-Computer Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
30	B.Tech-Computer Engineering	HP402	Sociology	2020-21	Gender Sensitivity
31	B.Tech-Electronics and Telecommunication Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
32	B.Tech-Electronics and Telecommunication Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
33	B.Tech-Electronics and Telecommunication Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
34	B.Tech-Electronics and Telecommunication Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional

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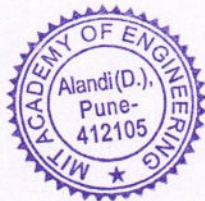|					Ethics
35	B.Tech-Electronics and Telecommunication Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
36	B.Tech-Electronics and Telecommunication Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
37	B.Tech-Electronics and Telecommunication Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
38	B.Tech-Electronics and Telecommunication Engineering	HP402	Sociology	2020-21	Gender Sensitivity
39	B.Tech-Electronics Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
40	B.Tech-Electronics Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
41	B.Tech-Electronics Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
42	B.Tech-Electronics Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
43	B.Tech-Electronics Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
44	B.Tech-Electronics Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
45	B.Tech-Electronics Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional

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|					Ethics
46	B.Tech-Electronics Engineering	HP402	Sociology	2020-21	Gender Sensitivity
47	B.Tech-Information Technology	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
48	B.Tech-Information Technology	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity
49	B.Tech-Information Technology	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
50	B.Tech-Information Technology	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
51	B.Tech-Information Technology	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
52	B.Tech-Information Technology	HP301	Project Management	2020-21	Human Values and Professional Ethics
53	B.Tech-Information Technology	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
54	B.Tech-Information Technology	HP402	Sociology	2020-21	Gender Sensitivity
55	B.Tech-Mechanical Engineering	HP106	Indian Constitution	2020-21	Human Values and Professional Ethics
56	B.Tech-Mechanical Engineering	CV203	Environmental Sciences	2020-21	Environment and Sustainability Gender Sensitivity

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57	B.Tech-Mechanical Engineering	HP202	Professional Skills I	2020-21	Human Values and Professional Ethics
58	B.Tech-Mechanical Engineering	HP203	Liberal Learning	2020-21	Human Values and Professional Ethics
59	B.Tech-Mechanical Engineering	HP302	Professional Skills	2020-21	Human Values and Professional Ethics
60	B.Tech-Mechanical Engineering	HP301	Project Management	2020-21	Human Values and Professional Ethics
61	B.Tech-Mechanical Engineering	HP401	Engineering Economics	2020-21	Human Values and Professional Ethics
62	B.Tech-Mechanical Engineering	HP402	Sociology	2020-21	Gender Sensitivity
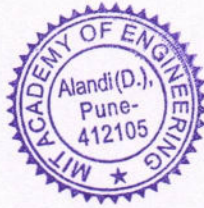
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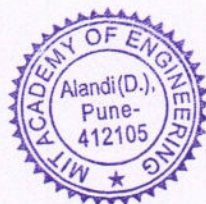Alandi (D.), Pune-412 105.

MIT | Academy of Engineering (An Autonomous Institute Affiliated to Savitribai Phule Pune University) Alandi (D), Pune – 412105, India.	NAAC Criteria 1.3 Course Description Document *UG Program* (Accredited by NBA, ISO 9001:2008 Certified)

FY BTECH COURSE
ABSTRACTS

Program	:	BTECH	Course Type	:	Skill Development and Project
Year	:	FYBTECH	Semester	:	II
COURSE CODE	:	**ME103**	**Course**	:	**Design Thinking**
			Credits	:	**2**

Course Description:

Through this course, it will be possible to become acquainted with the introductory phases of the Design Thinking process, as well as some of the principal methods it uses. Design Thinking is segmented into major three stages. The first stage of the process aims to get closer to the context of the project. In this phase emphasis is given on understanding the problem in a given context and its justification. The student learns to understand the different challenges involved in the design. The technique of mind mapping is taught which enables the student enable to look at the product/process from all possible aspect and the entity which affects the performance. Acquisition of mind mapping/ random checklist technique will enable the student to understand the product process comprehensively. The second stage is the Market research. It helps student understand which information is to be collected to generate design ideas. The collection of data is done in two stages viz, Primary Sources-Observations, Parallel products, Questionnaire, User survey and Secondary sources- Published information, Net based data. The student learns to develop empathy towards users. The information gathering and its analysis stimulates the student's creativity and generate innovative solutions for the defined problem. In ideation stage he/she learns different ideation technique like brain storming. The solutions are produced on paper using free hand sketching. In the final stage an attempt is made to make the solution. The solution can be made through dirty mock ups, 3D printing, Metal and wood. This is followed by iteration of the solution.

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SY BTECH COURSE ABSTRACTS

|					
Program	:	BTECH	Course Type	:	Program Core
Year	:	SYBTECH	Semester	:	III
COURSE CODE	:	**CH201**	**Course**	:	**Environmental Science**
			Credits	:	**3**

Course Description:

The main objective of this course is to present fundamentals of Environmental Science & to make students aware about the Environment & its related issues. The course provides broad background of Environmental science for applying the basic principles to deal with Environmental issues. In order to understand the importance of the environment in a better way, the concept of project-based learning, industrial visits, case studies, activity-based learning about the river water pollution, Malin land slide, Delhi Air Pollution, Rain water harvesting etc are included in the course. This course enables the students to work on various Environment related issues like prevention of water pollution, air pollution, soil pollution etc. Students also worked on the solid waste management projects like composting in which they develop the model for converting house hold degradable waste to the good quality manure. Development of various processes for converting plastic waste to valuable products. Also, students apply the knowledge of modern electronics & software tools for prevention & control of pollution, natural calamities like flood, landslide etc. This course also focusses on to the case studies like past environmental accidents which students learn, understand & analyses with respect to the causes, effect & prevention mechanism.

Program	:	BTECH	Course Type	:	Skill Development
Year	:	SYBTECH	Semester	:	IV
COURSE CODE	:	**ME213**	**Course**	:	**Minor Project**
			Credits	:	**2**

Course Description:

It is a need of the time to pay attention to the societal needs by an engineering graduate to solve Some of the real-life societal problems by providing affordable technological solutions. The concept of the minor project follows the same theme. The minor project aims to identify the problems from the society and develop the solutions for the same using science and technology for the betterment of society or human life.
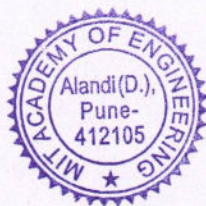
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TY BTECH COURSE
ABSTRACTS

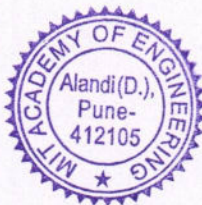| Program	:	BTECH	Course Type	:	Humanities & Social Science
Year	:	TYBTECH	Semester	:	V
COURSE CODE	:	**HP302**	**Course**	:	**Professional Skills**
			Credits	:	**2**

Course Description:

Professional skill course addresses the need for developing professional skill in early engineering phase. The course delivers professional communication and cognitive development (skills) that focuses on enhancing adoption of professional learning and practicing in engineering organizations. Course covers various modules like creative writing and presentation, voice modulation and debating, leadership, decision making and time management.

Program	:	BTECH	Course Type	:	Skill Development
Year	:	TYBTECH	Semester	:	VI
COURSE CODE	:	**HP324**	**Course**	:	**Mini Project**
			Credits	:	**2**

Course Description:

The main objective of this course is to understand the Product Development Cycle through mini-Project, where students will undertake & execute a project through a group of students. They will plan for various activities of the project and distribute the work amongst team members. The students will learn budgeting, planning for the project, engineering skills and processes, testing and effective trouble-shooting practices, safety norms and standards, significance of aesthetics & ergonomics while designing a product. This course will develop students. Abilities to transmit technical information clearly and delivery of presentation based on the Mini Project. They will understand the importance of document design standards by compiling technical report on the mini-Project work carried out in a team.

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Program	:	BTECH	Course Type	:	Humanities & Social Science
Year	:	FINAL YEAR BTECH	Semester	:	VII
COURSE CODE	:	**HP402**	**Course**	:	**Sociology**
			Credits	:	**2**

Course Description:

The Sociology course is designed to introduce the engineering students to the sociological study of society. Sociology focuses on the systematic understanding of social interaction, social organization, social institutions, and social change. Major themes in sociological thinking include the interplay between the individual and society, how society is both stable and changing, the causes and consequences of social inequality, and the social construction of human life. Understanding sociology helps discover and explain social patterns and see how such patterns change over time and in different settings. By making vivid the social basis of everyday life, sociology also develops critical thinking by revealing the social structures and processes that shape diverse forms of human life.

Program	:	BTECH	Course Type	:	Skill Development
Year	:	FINAL YEAR BTECH	Semester	:	VII
COURSE CODE	:	**ME405**	**Course**	:	**Energy Audit**
			Credits	:	**1**

Course Description:

Energy sector is crucial to grow the overall economy by generating productivity, stimulating research and development, and investing in the future. Energy engineering is based on core mechanical engineering skills and is concerned with understanding, analysing and improving complex energy management system and audits through real life applications. The course provides a good overview and an important tool which can be used to implement energy efficiency measures, energy analysis and conservation opportunities. This knowledge will enable to be more efficient with energy use and be able to track and accelerate savings.

Program	:	BTECH	Course Type	:	Skill Development
Year	:	FINAL YEAR BTECH	Semester	:	VII
COURSE CODE	:	**ME402**	**Course**	:	**Project - I**
			Credits	:	**4**

Course Description:
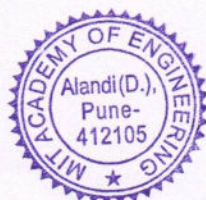
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Objective of this Major Project-I course is to understand the Product Development through team work. The students will able to shoulder the roles and responsibility and activity distribution amongst them. The students will learn designing, budgeting, planning, engineering skills and processes, testing an effective trouble-shooting practices, safety norms and standards while developing the application/ product. The students will deliver a presentation on the advancement in technology pertaining to the selected project topic and able to understand importance of document design and professional ethics.

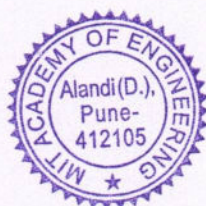|					
Program	:	BTECH	Course Type	:	Skill Development
Year	:	FINAL YEAR BTECH	Semester	:	VII
COURSE CODE	:	**ME404**	**Course**	:	**Summer Internship**
			Credits	:	**4**

Course Description:

To help students gain hands-on professional work experience prior to their graduation. To provide students possible opportunities to learn, understand and sharpen the real-time technical, managerial and life skills required at the job. To instil qualities like confidence, maturity, responsibility, and social skills necessary for personal and professional growth. To familiarize students to the business environment, which cannot be simulated in the classroom; thus, creating competent professionals

Program	:	BTECH	Course Type	:	Skill Development
Year	:	FINAL YEAR BTECH	Semester	:	VIII
COURSE CODE	:	**ME432**	**Course**	:	**Project - II**
			Credits	:	**4**

Course Description:

Major Project-II focuses on implementing the full and final project and the report. After The remaining project work which consists of selection of approach / methodology / tools and techniques, Designing, installation, results and performance evaluation. Also includes the comparative analysis and validation of result. Should prepare the Project report as per format for satisfactory completion of work certified by concern project advisor and dean. It is desirable to prepare and publish the conference or journal paper or IPR and publish with peer reviewed publishing agency.

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