

PAAVAI ENGINEERING COLLEGE

(Autonomous)

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

2020-2021

S.NO	REGULATIONS	No. of Courses		
		Gender	Environment and Sustainability	Human Values and Professional ethics
1	2016 & 2019	2	37	27

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S.NO	Name of the Programme & Department	No. of Courses		
		Gender	Environment and Sustainability	Human Values and Professional ethics
1	Common Courses		1	6
2	B.E Aeronautical Engineering		1	2
3	B.E Agriculture Engineering		1	3
4	B.E Civil Engineering		17	1
5	B.E Computer Science Engineering			
6	B.E Electronics and Communication Engineering			
7	B.E Electrical and Electronics Engineering		2	1
8	B.E Mechanical Engineering			
9	B.E Mechatronics		2	
10	B.E BioMedical Engineering			3
11	B.E Medical Electronics			
12	B.Tech Chemical Engineering		1	1
13	B.Tech Information Technology		1	1
14	B.Tech Food Technology		2	
15	B.Tech Pharmaceutical Technology		1	
16	M.E Engineering Design		1	
17	M.E Communication Systems			1
18	M.E Power Electronics and Drives			2
19	M.E Power Systems Engineering			
20	M.E Structural Engineering		5	1
21	Master of Business Administration	2		1
22	Master of Computer Applications			
23	Science and Humanities		2	4
TOTAL		2	37	27

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COURSES – CROSS CUTTING ISSUES

Regulations 2019

Department	Course name	Course code	Description	Gender, Environment and Sustainability, Human Values and Professional Ethics
Common courses(For all departments)	Value Education	MC19301	Provides the students to develop their Social ,Spiritual and moral values	Human Values and Professional Ethics
	Environmental Science and Engineering	MC19401	Explain the concepts of different types of water sources, water quality parameters and factors governing selection of a good water source and conventional water treatment. This course also explains the social issues with regard to the environment.	Environment and Sustainability
	Entrepreneurship Development	BA19154	Acquire knowledge about competencies, motivation techniques in entrepreneurship and to understand the role of government and other agencies in promoting entrepreneurship	Professional Ethics
AGRI	Industrial safety management	AI19152	Impart knowledge in safety audit, performance monitoring and to learn principles and practices of safety management in industries and gain knowledge about safety education and training system	Environment and Sustainability
CIVIL	Highway Engineering	CE19402	This course intends planning and alignment of Highways, geometric design as per IRC, design principles of flexible pavements, Highway maintenance, etc.	Environment and Sustainability
MECHATRONICS	Renewable Energy Sources	MT19452	Consist of the basic and important things of environmentally responsible and eco-friendly use of computers and their resources. This course also explains the study of designing, engineering, manufacturing, using and disposing of computing devices in a way	Environment and Sustainability

IT	Green Computing	IT19402	Consist of the basic and important things of environmentally responsible and eco-friendly use of computers and their resources. This course also explains the study of designing, engineering, manufacturing, using and disposing of computing devices in a way that reduces their environmental impact.	Environment and Sustainability
FOOD	Environmental issues in Food Industries	FT19404	Explain the concepts of different types of food sources, food quality parameters and factors governing selection of a good food source and conventional food treatment. This course also explains the social issues with regard to the environment.	Environment and Sustainability
ME ED	Waste to Energy	PED19903	Deals with basic and fundamental norms which is related to the safety for humans in industry regardless their gender, region, age and location.	Environment and Sustainability
M.E (Communication Systems)	Research Methodology and IPR	PEN19101	Identifying the Research problems and collect the suitable data for Research. Write research proposals and Reports and apply their research work for patent through IPR.	Human Values and Professional Ethics
ME(PED)	Technical Seminar I	PPE19106	This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. It is used to express that knowledge in a clear, concise, and coherent manner.	Human Values and Professional Ethics
	Technical Seminar II	PPE19206	This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. It is used to express that knowledge in a clear, concise, and coherent manner.	Human Values and Professional Ethics
ME STRUCTURAL	Theory of Structural Stability	PSE19153	This course intends States of equilibrium, Finite difference Method, Effect of shear on buckling, Stability analysis of beam column with single and several concentrated loads, Combined Torsional and flexural buckling, Lateral buckling of beams	Environment and Sustainability
	Earthquake Resistant Design	PSE19254	This course describes Analysis SDOF systems with ground motion, Modal analysis for forced vibration with harmonic loading and determination of nodal forces from first principles	Environment and Sustainability

ME STRUCTURAL	English for Research Paper Writing (Audit Course I)	PEN19171	This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. It is used to express that knowledge in a clear, concise, and coherent manner.	Human Values and Professional Ethics
	Wind and Cyclone Effects on Structures	PSE19554	This course includes Dynamic nature of wind ,aero dynamic and aero-elastic models, Effect of wind on structures, Transmission towers and steel monopoles,Cyclone effect on – low rise structures,use of code provisions in cladding design, etc.	Environment and Sustainability
	Advanced Steel Design	PSE19351	This course indents bending of tension members, stress concentrations, , torsional buckling, built up compression members with lacings and battens, Design of high strength function grip bolts,Moment resistant connection,Design of purlins, louver Rails, gable column,Analysis of portal frames,Haunched connections; Design of continuous beams,Design of tension members; Design of flexural members, Shear lag, Flange curling.	Environment and Sustainability
	Design of Formwork	PSE19352	This course enlist the formwork materials and supports, Design for Foundations, Walls, Columns, Slab and Beams, Design and Details of Special Structures, Case studies in Formwork Failure	Environment and Sustainability
MBA	Business Ethics	BA19101	This course speaks about the ethics in business management	Human Values and Professional Ethics
	Feminist movement	20BAVC401	This concept explains the value of women Balancing the work life and personal life. It creates awareness about the importance of gender.	Gender

	Gender and equity	21BAVC301	This concept explains the gender and the domination. It provides the importance of the needs.	Gender
S&H	Human Rights and Duties	20GEVC101/201	Help the student that such rights include right to life, liberty and security of persons, right to privacy, home and correspondence, right to own property, freedom from torture, inhuman and degrading treatment, freedom of thought, conscience and religion and freedom of movement.	Human Values and Professional Ethics
	Human Value	20GEVC101/201	Understand the impact of the human values which are considered basic inherent values in humans include truth, honesty, loyalty, love, peace, etc.	Human Values and Professional Ethics
	Verbal communication	21GEVC101	This includes topics such as reading/writing/listening comprehension, note taking, summarizing, report writing, along with elements of grammar and vocabulary. It is used to express that knowledge in a clear, concise, and coherent manner.	Human Values and Professional Ethics
	Aptitude-I	21GEVC102	Help the students consists of practice exercises for Quantitative or Numerical and Verbal Ability. Prepare for Aptitude Tests for Entrance Exams like GATE, CAT, Bank PO, SAT, GMAT, GRE, UPSC and RRB.	Environment and Sustainability
	Solar Photovoltaics	21GEVC103	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	Environment and Sustainability
	Human Rights	21GEVC104	This designed to impart knowledge and practical ability about the rights and directive principles that are provided to all students.	Human Values and Professional Ethics

Regulations 2016

Department	Course name	Course code	Description	Gender, Environment and Sustainability, Human Values and Professional Ethics
Common courses (for all department)	Entrepreneurship Development	BA16451	Help the students to develop their skill and motivates them to become a successful entrepreneur	Human Values and Professional Ethics
	Professional Ethics and Human Values	BA16151	Help the students appreciate the essential complementarities between values and skills to ensure sustained happiness which are the core appreciations of all human beings. It create an awareness on Engineering Ethics and Human Values	Human Values and Professional Ethics
	Total Quality Management	BA16253	Helps the students to to know about the basic concepts in Quality Management, Customer orientation and retention, facilitate the understanding of Quality Management principles and process, to know the techniques in Six Sigma, Bench marking and FMEA. become familiar with Quality System, Quality Auditing in manufacturing	Human Values and Professional Ethics
	Principles of Management	BA16254	This applies ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	Human Values and Professional Ethics
AERO	Crisis Management in Aircraft Industry	AE16454	Help the students to develop the skill and knowledge to develop the management of critical situations arising in the management and also in aircraft operations	Human Values and Professional Ethics
	Wind Power Engineering	AE16902	Provides the concepts of different types of energy resources, This course also explains the social issues energy utilization with regard to the environment.	Environment and Sustainability
	Aircraft Safety	AE16903	This course includes the safety of aircraft related to human factors and various human errors costing life of human being and also focus on how to save human life during emergency situations	Human Values and Professional Ethics
AGRI	IT in Agricultural Systems	AI16604	possess sufficient knowledge of precision farming and application of remote sensing, GPS, GIS in cropsimulation modeling,acquire acquaintance of precision farming and crop simulation modeling, expose agricultural system management for optimizing the use of resources, know the weather prediction models and their application in seasonal climate forecasts	Human Values and Professional Ethics

AGRI	Professional Ethics in Agriculture Engineering	AI16903	Explain an exposure on human values, instill moral and social responsibility of engineers, give awareness about safety, responsibilities and rights, • realize the need of safety, responsibilities and rights in the society, • apply ethics theories in the agriculture profession	Human Values and Professional Ethics
	Agricultural Economics and Extension	AI16702	impart the fundamental knowledge of Economics, types of resources and Investment analysis, get an idea about management of resources and understand basics of agricultural economics to plan the financial aspects in a cost effective manner to know the different farm management techniques.	Human Values and Professional Ethics
CIVIL	Design of Steel Structures	CE16601	This course includes properties of steel, design of connections in tension members, basis of current codal provision for compression members, built up beams, design of gantry girders, etc.	Environment and Sustainability
	Design of Reinforced Concrete Elements	CE16501	Explain the concepts of different types of water sources, water quality parameters and factors governing selection of a good water source and conventional water treatment. This course also explains the social issues with regard to the environment.	Environment and Sustainability
	Hydrology and Water Resources Engineering	CE16151	This course includes hydrological cycle, runoff estimation, flood estimation, flood control, life of reservoirs, rule curve, properties of aquifers, seawater intrusion, etc.	Environment and Sustainability
	Air pollution and Control Engineering	CE16154	This course intends sources of air pollution, global warming, elements of atmosphere, dispersion of pollutants, filtration, scrubbing, air quality standards, environmental impact assessment on air quality,	Environment and Sustainability
	Design of Reinforced Concrete and Brick Masonry Structures	CE16603	This course describes the design of cantilever and counterfort retaining walls, design of rectangular and circular water tank, design of circular slab, design of staircases, design of flat slabs, design of box culvert, road bridges and also describes the yield line theory and brick masonry	Environment and Sustainability
	Waste Water Engineering	CE16604	Explains the estimation of sanitary sewage flow, estimation of storm runoff, design of sanitary and storm sewers, plumbing system for buildings, primary and secondary treatment of sewage and standards for disposal.	Environment and Sustainability

CIVIL	Foundation Engineering	CE16605	Explains the concept of exploration, penetration test, bearing capacity of shallow foundation, methods of minimizing total and differential settlements, isolated footing, combined footing, types of piles, negative skin friction and Rankine's theory	Environment and Sustainability
	Building Services	CE16901	Understand the impact of Earthing for safety, modern theory of light and colour, design of modern lighting, thermodynamics, cooling towers, air conditioning systems, safety regulations, NBC, fire alarm systems, automatic sprinklers, plumbing fixtures and fixtures fittings.	Environment and Sustainability
	Smart Structures and Smart Materials	CE16904	This course contents Signal processing consideration, Strain Measuring Techniques using Electrical strain gauges, Absorptive chemical sensors, Sensing Technology, Actuator Techniques, Data Acquisition and Processing.	Environment and Sustainability
	Environmental Engineering Laboratory	CE16607	This course intends determination of pH, Turbidity, Determination of Alkalinity, Determination of Residual Chlorine, Determination of Optimum Coagulant Dosage, 9. Determination of available Ammonia Nitrogen, etc.	Human Values and Professional Ethics
	Structural Dynamics and Earthquake Engineering	CE16702	this course includes Response to harmonic forces and periodic forces, Eigen values and Eigen vectors, Elements of Engineering Seismology, Effect of earthquake on different types of structures, Lessons learnt from past earthquakes, Earthquake resistant design of R.C.C. buildings, etc.	Environment and Sustainability
	Industrial Waste Water Engineering	CE16251	this course includes Uses of water by Industry, Regulatory requirements for Industrial wastewater, Evaluation of Pollution Prevention Options, Cost benefit analysis, Advanced oxidation and Tertiary Treatment processes for removal of dissolved organics and inorganics, Dewatering and Disposal of Sludge, Wastewater characteristics, Pollution Prevention Options etc.	Environment and Sustainability
	Municipal Solid Waste Management	CE16253	This course describes Principle of solid waste management, On-site storage methods, Methods of Collection, Processing techniques and Equipment, Dumping of solid waste, etc.	Environment and Sustainability
	Disaster Management	CE16907	This course describes Do's and Don'ts during various types of Disasters, Processes and Framework at State and Central Level, Factors affecting Vulnerabilities, Hazard and Vulnerability profile of India, Disaster Damage Assessment, Landslide Hazard Zonation, etc.	Environment and Sustainability

CIVIL	Environmental Impact Assessment	CE16910	This course intends Environmental Impact Statement, Methods of EIA, Assessment of Impact on land, Addressing the issues related to the Project affected people, Water Supply and Drainage Projects, etc.	Environment and Sustainability
	Environmental and Irrigation Engineering Drawing	CE16705	this course describes Design and Drawing of rapid sand filter, Design and Drawing of septic tank, Design and Drawing of canal drop, Design and Drawing of syphon aqueduct, etc.	Environment and Sustainability
	Maintenance, Repair and Rehabilitation of Structures	CE16353	this course contents Geometric design of railway, gradient, super elevation, widening of gauge on curves, Calculation of Materials required for track laying, parking and Circulation Area, Runway and Taxiway Markings, Structures and Coastal Protection Works, etc.	Environment and Sustainability
EEE	Wind and Solar Energy Systems	EE16904	Wind and Solar energy resources impact in electrical power generation, Generation method of electrical power. Waste management of the solar panels.	Environment and Sustainability
	Electrical Safety	EE16152	Electrical safety is a system of organizational measures and technical means to prevent harmful and dangerous effects on workers from electric current, electric arc, electromagnetic field and static electricity.	Human Values and Professional Ethics
	Renewable Sources of Energy	ME16901	Provides the concepts of various forms of energy producing in nature sources like sunlight, water and air. By these sources of energy producing techniques not affect the environment system. Students may aware that they may changed their life style by utilized the sources.	Environment and Sustainability
MCT	Renewable Energy Sources	MT16453	Provides the concepts of different types of water sources, water quality parameters and factors governing selection of a good water source and conventional water treatment. This course also explains the social issues with regard to the environment.	Environment and Sustainability
BIO MEDICAL/ MEDICAL ELECTRONICS	Health care and hospital management	BM16801	It is very much helpful for the students to know about the Hospital management in a computer system that helps manage the information related to health care and aids in the job completion of health care providers effectively. They manage the data related to all departments of healthcare such as, Clinical, Financial, Laboratory etc.	Human Values and Professional Ethics
	Industrial Medical system	BM16955	It's an aggregation and integration of sectors within the economic system that provides goods and services to treat patients with curative, preventive, rehabilitative, and palliative care. It includes the generation and commercialization of goods and services lending themselves to maintaining and re-establishing health.	Human Values

	Hospital Internship Training	BM16705	Students need to understand the design of equipment and its devices, such as artificial internal organs, replacements for body parts, and machines for diagnosing medical problems. Install, maintain, or provide technical support for biomedical equipment.	Human Values and Professional Ethics
CHEMICAL	Industrial Wastewater Treatment	CM16902	The concepts of different types of sources of waste water, quality parameters and factors concerned with waste water characterization, physical, chemical and biological methods of waste water treatment , Reactors used in treatment of waste water are discussed.	Environment and Sustainability
	Process Economics and Management	CM16703	Helps the students to know the concept of economics and techniques / tools used in management. Students will develop managerial skills and human values.	Human Values and Professional Ethics
IT	Cryptography and Network Security	IT16704	Helps the students to learn the protection of computer systems and networks from information disclosure, theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.	Human Values and Professional Ethics
FOOD	Process Economics and Management	FT16605	Makes the students to understand the concepts of production and operations management in an industries and expose to analytical methods.	Sustainability
PHARMA	Chemical reaction Thermodynamics	CM16601	Students will learn the different types mode of heat transfer and its importance. Students will learn to proper techniques of utilization of thermal effects with minimum impact on environment.	Environment and Sustainability