Government College of Engineering, Karad

PROPOSED SCHEME OF INSTRUCTION

Programme: Honors and Multidisciplinary Minor (Environmental Sustainability)

Minor: Semester – I (Major: Semester – IV)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEHO-0401	United Nations Sustainable Development Goals	03	--	03	03	50	50	100
		Total	**03**	**-**	**03**	**03**	50	50	100

Minor: Semester –II (Major: Semester – V)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEHO-0501	Sustainable Engineering Concepts and Life Cycle Analysis	03	--	03	03	20	30	50
2	CEHO-0502	Sustainable Engineering Concepts and Life Cycle Analysis Lab	--	02	02	01	--	50	50
		Total	**03**	**02**	**05**	**04**	**20**	**80**	**100**

Minor: Semester – III (Major: Semester – VI)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEHO-0601	Environment, social and governance	03	--	03	03	20	30	50
2	CEHO-0602	Environment, social and governance Lab	--	02	02	01	--	50	50
		Total	**03**	**02**	**05**	**04**	**20**	**80**	**100**

Minor: Semester –IV (Major: Semester – VII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEHO-0701	Environment, health and safety	03	--	03	03	50	50	100
		Total	**03**	**-**	**03**	**03**	50	50	100

Minor: Semester –V(Major: Semester – VIII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							PBE-I	PBE-II	TOTAL
3	CEHO-0801	Major capstone project (design & development)	-	08	08	04	50	50	100
		Total	**-**	**-**	**08**	**04**	50	50	100

L- Lecture P-Practical

FA- Formative Assessment SA - Summative Assessment (For Laboratory End Semester performance)

PBE-I– Project-based Examination (For Laboratory Mid Semester Performance)

PBE- II Project-based Examination (For Laboratory End Semester Performance)

PROGRESSIVE TOTAL CREDITS: 18

Guidelines:-Students will take up 5-6 additional course in the same Engineering/ Technology discipline of 18 credit distributed over semester III –VIII. These 18 credits will be over and above the 176 credits prescribed for four year multidisciplinary bachelor's degree in Engg/Tech Program.

Government College of Engineering, Karad

PROPOSED SCHEME OF INSTRUCTION

Programme: Honors with Research and Multidisciplinary Minor

Minor: Semester –I(Major: Semester – VII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							PBE-I	PBE-II	TOTAL
3	CEHRO-0701	Research Project Phase -I	--	18	18	09	100	100	200
		Total	**--**	**18**	**18**	**09**	**100**	**100**	**200**

Minor: Semester – II (Major: Semester – VIII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							PBE-I	PBE-II	TOTAL
1	CEHRO-0802	Research Project Phase -II	--	18	18	09	100	100	200
		Total	**--**	**18**	**18**	**09**	**100**	**100**	**200**

L- Lecture P-Practical

FA- Formative Assessment SA - Summative Assessment (For Laboratory End Semester performance)

PBE-I– Project-based Examination (For Laboratory Mid Semester Performance)

PBE- II Project-based Examination (For Laboratory End Semester Performance)

PROGRESSIVE TOTAL CREDITS: 18

Guidelines:-Students will work on research project for 18 credits in the semester VII –VIII in the respective Major Engineering/Technology discipline. These 18 credits will be over and above the 176 credits prescribed for four year multidisciplinary bachelor's degree in Egg/Tech Program.

Government College of Engineering, Karad

PROPOSED SCHEME OF INSTRUCTION

Programme: Double Minors (Multidisciplinary and Specialization Minors)

(Major: Semester – III)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEDO-0301	Basic Civil Engineering	02	--	02	02	50	50	100
		Total	**02**	**--**	**02**	**02**	**50**	**50**	**100**

(Major: Semester – IV)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEDO-0401	Building Materials	02	--	02	02	50	50	100
		Total	**02**	**--**	**02**	**02**	**50**	**50**	**100**

(Major: Semester – V)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEDO-0501	Building Planning and Drawing	03	--	03	03	50	50	100
2	CEDO -0502	Building Planning and Drawing Lab	--	02	02	01	50	-	50
		Total	**03**	**02**	**05**	**04**	**100**	**50**	**150**

(Major: Semester – VI)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEDO-0601	Building Services	02	--	02	02	50	50	100
		Total	**02**	**--**	**02**	**02**	**50**	**50**	**100**

(Major: Semester – VII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							FA	SA	TOTAL
1	CEDO-0701	Smart Building I	02	--	02	02	50	50	100
		Total	**02**	**--**	**02**	**02**	**50**	**50**	**100**

(Major: Semester – VIII)

Sr. No.	Course Code	Course Title	L	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME		
							PBE-I	PBE-II	TOTAL
1	CEDO -0801	Smart Building II	02	--	02	02	50	50	100
2	CEDO -0802	Major Capstone Project (Design & Development)	--	08	08	04	50	50	100
		Total	**--**	**08**	**10**	**06**	100	100	200

L- Lecture P-Practical

FA- Formative Assessment SA - Summative Assessment (For Laboratory End Semester performance)

PBE-I– Project-based Examination (For Laboratory Mid Semester Performance)

PBE- II Project-based Examination (For Laboratory End Semester Performance)

PROGRESSIVE TOTAL CREDITS: 18

Guidelines:-Students will take up 5-6 addittional courses in another Engineering/ Technology/ Emerging Area of Specialization of 18 credit distributed over semester III –VIII. These 18 credits will be over and above the 176 credits prescribed for four year multidisciplinary bachelor's degree in Engg/Tech Program.

Government College of Engineering, Karad

Department ofCivil Engineering

Programme: Honors and Multidisciplinary Minor (Environmental Sustainability)

CEHO 0401: United Nations Sustainable Development Goals

Teaching Scheme			**Examination Scheme**	
Lectures	02 Hrs/week		MSE	20
Tutorials	00 Hrs/week		ISE	20
Total Credits	02		ESE	60
			Duration of ESE	02 Hrs 30 Min

Prerequisite :

Course Outcomes (CO): Students will be able to

CO1	Differentiate between sustainability, sustainable development, and the sustainable development goals.
CO2	Recognise the role of united nations, the 2030 agenda, and international agreements.
CO3	Analyse how governments, businesses and civil societies can actively participate in implementation of sustainable development goals.
CO4	Analyse how sustainable development goals are monitored, tracked and reported.

	Course Contents	**CO**	**Hours**
Unit 1	Introduction, United Nations and a World in Order, Scenario of Current Model of Growth and Development Need forChange, Definition of Sustainability, Aspects of Sustainability, Transition from MDGs to SDGs, The Role of UN and the Need for SDGs and Adoption by the World	**CO1, CO2**	**(04)**
Unit 2	Scope and Inclusion and Agenda 2030, Our Common Future and Philosophy behind SDGs, Distinction between Development and Sustainable Development, Circular economy, Design for sustainability, Thinking Alternatives and Innovation, Causal Mapping, Systemic Mapping and Problem Identification	**CO1, CO2**	**(04)**
Unit 3	Identifying probable interventions for SD, Framework and Structuring of Seventeen SDGs SDG 1: No Poverty SDG 2: Zero Hunger SDG 3: Good Health and Well-being SDG 4: Quality Education SDG 5: Gender Equality SDG 6: Clean Water and Sanitation SDG 7: Affordable and Clean Energy SDG 8: Decent Work and Economic Growth SDG 9: Industry, Innovation and Infrastructure SDG 10: Reduced Inequality SDG 11: Sustainable Cities and Communities SDG 12: Responsible Consumption and Production SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land SDG 16: Peace and Justice Strong Institutions SDG 17: Partnerships to achieve the Goal	**CO1, CO3, CO4**	**(04)**
Unit 4	Interrelationships and Connections between Seventeen SDGs, SDG Structure and Order at Levels ofPeople (SDG 1 - 10), Ecological (SDG 11 - 15) and Spiritual (SDG 16 - 17) SDGs and Socio Ecological Systems: Economy SDGs 8, 9, 10, 12; Society SDGs 1, 2, 3, 4, 5, 7, 11,16; Biosphere SDGs 6, 13, 14, 15	**CO1, CO3**	**(04)**
Unit 5	Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance Climate Change Conferences and Summits such as Rio Earth Summit 1992, Kyoto Protocol 1995,Paris Agreement 2015, COP 26 2021, etc.	**CO3**	**(04)**
Unit 6	Case Studies from around the World, Implementation at International Level, Global Reports Case studies from India, Implementation at National Level, National Reports Nodal Agency for Implementation in India, Effective Strategy for Implementation in Indian	**CO3, CO4**	**(04)**

	Scenario, State Level Reports, Assessment of Implementation and Checking its Effectiveness		
Text Books			
1.	S. Hazra and A. Bhukta, "Sustainable Development Goals: An Indian Perspective", Switzerland: Springer International Publishing, 2020		
2.	A. Ziai, "Development Discourse and Global History: From Colonialism to the Sustainable Development Goals", London and New York: Routledge, 2016.		
Reference Books			
1.	OECD, "Sustainable Results in Development: Using the SDGs for Shared Results and Impact", Paris: OECD Publishing, 2019		
Useful Links			
1.	http://www.un.org/sustainabledevelopment/		

Mapping of COs and POs

PO → CO ↓	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO 1	2	-	-	-	-	-	3	1	2	-	-	1	-	1
CO 2	1	-	-	2	1	1	3	-	2	-	1	-	1	-
CO 3	1	-	2	-	1	2	2	-	2	1	-	-	2	-
CO 4	1	1	-	2	-	-	2	-	1	-	-	-	2	-

Assessment Pattern(with revised Bloom's Taxonomy)

Knowledge Level	MSE	ISE	ESE
Remember	5	4	20
Understand	5	4	-
Apply	5	4	10
Analyse	-	4	20
Evaluate	5	4	10
Create	-	-	-
TOTAL	20	20	60

Government College of Engineering, Karad

Department ofCivil Engineering

Programme: Double Minors (Multidisciplinary and Specialization Minors)

CEDO-0301: Basic Civil Engineering

Teaching Scheme			Examination Scheme	
Lectures	02 Hrs/week		MSE	20
Tutorials	00 Hrs/week		ISE	20
Total Credits	02		ESE	60
			Duration of ESE	02 Hrs 30 Min

Prerequisite : Knowledge of identifying basic building components.

Course Outcomes (CO): Students will be able to

CO1	UnderstandroleofCivilEngineer&applicationsofvariousbranchesofCivil Engineering.
CO2	Knowvariousbuildingcomponentsforconstruction.
CO3	Identify concepts ofsurveying&levellingandunderstandtheirapplicability.
CO4	Understandtypesof infrastructure.

	Course Contents	CO	Hours
Unit 1	**IntroductiontoCivilEngineering:-** RoleofCivilEngineerinvariousconstructionactivities,BranchesofCivilEngineering,Principlesofplanning,Selectionofsiteforresidentialbuilding,Importantbuildingbye-Laws,Typical planofresidential buildingwithintroductiontolineplan.	CO1	(06)
Unit 2	**Building Components :** Sub-structure: Types of soil and rocksasfoundationstrata, Concept of bearing capacity, Types of foundations i.e. shallow & deepfoundations,Plinth,Super-structure:Elementsofsuper-structures:walls,floor, roof,doors&windows,lintel,staircase,etc.	CO2	(05)
Unit 3	**Typesofstructures:**Introductiontotypesofloads,Differencebetweenloadbearing and framed structures.	CO2	(04)
Unit 4	**Surveying**: Principles of surveying, Classification of surveys, Nominal scale andrepresentative fraction. Ranging, offset, cross staff survey, compass survey & itstypes. **Levelling:**Introduction, Basic terminology, Types of Level, Levelling Staff.	CO3	(05)
Unit 5	**IntroductiontoRemotesensingandGIS**:-GeographicalInformationSystem (GIS), Global PositioningSystem(GPS)andits applicationsinCivilEngineering	CO3	(03)
Unit 6	**IntroductiontoInfrastructure:**RoleofInfrastructureinEconomicdevelopment, Types ofInfrastructure.	CO4	(03)

Text Books

1.	S. P. Arora and S. P. Bindra, "A Text-Book of Building Construction", DhanpatRai Publication, ISBN 978-8189928803
2.	S. K. Duggal, "Building Materials", New Age Publishers, ISBN: 978-9387788398

Reference Books

1.	S. K. Sharma, "Civil Engineering Construction Materials", Khanna Book Publishing Co. Ltd., ISBN: 9789382609841.

Useful Links

1.	https://youtube.com/playlist?list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT
2.	https://youtube.com/playlist?list=PL8BA090E69BF01BC2
3.	https://youtube.com/playlist?list=PLk7ptZcI9vmhBh7evUtxAbHe3Ojs_099H

Mapping of COs and POs

PO →CO↓	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO 1	-	-	-	-	-	-	-	-	1	2	1	2	1	2
CO 2	-	-	-	-	2	3	3	3	2	2	2	2	1	1
CO 3	3	-	-	2	3	3	2	3	2	2	3	2	2	2

Assessment Pattern(with revised Bloom's Taxonomy)

Knowledge Level	MSE	ISE	ESE
Remember	5	4	20
Understand	5	4	10
Apply	5	4	10
Analyse	-	4	10
Evaluate	5	4	10
Create	-	-	-
TOTAL	20	20	60

Government College of Engineering, Karad

Department ofCivil Engineering

Programme: Double Minors (Multidisciplinary and Specialization Minors)

CEDO-0401: Building Materials

Teaching Scheme			Examination Scheme	
Lectures	02 Hrs/week		MSE	20
Tutorials	00 Hrs/week		ISE	20
Total Credits	02		ESE	60
			Duration of ESE	02 Hrs 30 Min

Prerequisite : Knowledge of identifying building materials.

Course Outcomes (CO): Students will be able to

CO1	Understand the properties of construction materials.
CO2	Understand the specific use of construction materials.
CO3	Apply the knowledge for selection of materials on field.

	Course Contents	CO	Hours
Unit 1	**Stones:-** Historyofstonesasaconstructionmaterial,Quarryingofstones(methodsonly),Propertiesandusesofprinciplebuildingstone,Requirementofgoodbuilding stones, Types of building stones.	**CO1, CO2, CO3**	**(05)**
Unit 2	**Bricks:-** Historyofbricksasaconstructionmaterial,Compositionofclaybricks,Manufacturingofbricks,Typesofbricks,Classificationofburntclaybricks,Flyash bricks, Field tests for good brick ,Aerated cement concrete bricks.	**CO1, CO2, CO3**	**(04)**
Unit 3	**Timber:-**Structureofatimbertree,PropertiesofgoodTimber,Defectsoftimber, Decay of timber, Seasoning of timber, Preservation of timber.	**CO1, CO2, CO3**	**(04)**
Unit 4	**CementandMortar:-**Functionsofmortar,Propertiesofanidealmotor,**Cement:-** Functions of cement ingredients, Composition of Portland cement, Types of cements.	**CO1, CO2, CO3**	**(04)**
Unit 5	**AggregatesandTiles:-** Propertiesoffineaggregatesandcoarsesegregates,Sand,artificialsand,Usesofsand.**Tiles:-** Propertiesoftiles,Useoftiles,Pavementblocks and their uses, Types of tiles.	**CO1, CO2, CO3**	**(05)**
Unit 6	**MiscellaneousMaterials:-**Glassanditsproperties,Typesofglassanduses, **Plastics:-**Propertiesofplasticsanditsuses,Useofaluminiuminconstruction,Paintsand its types.	**CO1, CO2, CO3**	**(05)**

Text Books

1. S. P. Arora and S. P. Bindra, “A Text-Book of Building Construction”, DhanpatRai Publication, ISBN 978-8189928803
2. S. K. Duggal, “Building Materials”, New Age Publishers, ISBN: 978-9387788398

Reference Books

1. S. K. Sharma, “Civil Engineering Construction Materials”, Khanna Book Publishing Co. Ltd., ISBN: 9789382609841.

Useful Links

1. https://youtube.com/playlist?list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT
2. https://youtube.com/playlist?list=PL8BA090E69BF01BC2
3. https://youtube.com/playlist?list=PLk7ptZcI9vmhBh7evUtxAbHe3Ojs_099H

Mapping of COs and POs

PO →CO↓	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO 1	-	-	-	-	-	-	-	-	1	2	1	2	1	2
CO 2	-	-	-	-	2	3	3	3	2	2	2	2	1	1
CO 3	3	-	-	2	3	3	2	3	2	2	3	2	2	2

Assessment Pattern(with revised Bloom's Taxonomy)

Knowledge Level	MSE	ISE	ESE
Remember	5	4	20
Understand	5	4	10
Apply	5	4	10
Analyse	-	4	10
Evaluate	5	4	10
Create	-	-	-
TOTAL	20	20	60