AppendixG

ProgramName: Robotics & Artificial Intelligence																				
(Semester:First)																				
Coursecode	**CourseTitle**	**Type**	**TeachingScheme**			**EvaluationScheme(Marks)**						**MinimumPassing(Marks)**						**Credit**	**Remarks**
						Internal			**External**		**Total**	**Internal**			**External**		**Total**		
			L	**T**	**P**	**CA**	**MSE**	**TW**	**ESE**	**PR**		**CA**	**MSE**	**TW**	**ESE**	**PR**			
22IUCC0101B	Mathematics-I	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IUCC0102B	Physics-I	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IUCC0103B	Chemistry-I	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IUCC0104H	English-I	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IUCC0105T	Fundamentalsof ComputerSystem	Theory	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Audit	
22IUCC0106T	EngineeringGraphics	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IUCC0102L	Physics-ILab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0103L	Chemistry-ILab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0104L	LanguageLab-I	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0105L	Fundamentals ofComputer SystemLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0106L	EngineeringGraphicsLab	Practical	-	-	4	-	-	100	-	-	100	-	-	40	-	-	40	2	
Total			**17**	**3**	**12**	**100**	**100**	**300**	**300**	**0**	**800**	**0**	**0**	**120**	**120**	**0**	**320**	**24**	
(Semester:Second)																				
Coursecode	**CourseTitle**	**Type**	**TeachingScheme**			**EvaluationScheme(Marks)**						**MinimumPassing(Marks)**						**Credit**	**Remarks**
						Internal			**External**		**Total**	**Internal**			**External**		**Total**		
			L	**T**	**P**	**CA**	**MSE**	**TW**	**ESE**	**PR**		**CA**	**MSE**	**TW**	**ESE**	**PR**			
22IUCC0201B	Mathematics-II	Theory	3	1	-	20	20	-	60	-	100			-	24	-	40	4	
22IUCC0202B	Physics-II	Theory	3	1	-	20	20	-	60	-	100			-	24	-	40	4	
22IUCC0203B	Chemistry-II	Theory	3	1	-	20	20	-	60	-	100			-	24	-	40	4	
22IUCC0204H	UniversalHuman Value	Theory	2	-	-	-	-	-	50	-	50			-	20	-	20	2	
22IUCC0205T	Computer Workshop	Theory	2	-	-	-	-	-	-	-	-			-	-	-	-	Audit	
22IUCC0202L	Physics-IILab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0203L	Chemistry-IILab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0204L	UniversalHuman Value-Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0205L	Computer WorkshopLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IUCC0206L	WorkshopPracticesLab	Practical	-	-	4	-	-	100	-	-	100	-	-	40	-	-	40	2	
Total			**13**	**3**	**12**	**60**	**60**	**300**	**230**	**0**	**650**	**0**	**0**	**120**	**92**	**0**	**260**	**20**	

Program Name: Robotics & Artificial Intelligence

(Semester: Third)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IUCC0301B	Mathematics - III	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
ENV-C	EnvironmentalStudies	Theory	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	Audit	
22IURA0303T	Metrology & Quality Control	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0304T	Basics of Electrical and Electronics	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0305T	Engineering Mechanics	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0308T	Engineering Drawing	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IUCC0306H	Effective Communication and Soft Skill Lab		2															Audit	
22IURA0303L	Metrology & Quality Control Lab	Practical	-	-	2	20	20	-	60	-	100	-	-	-	24	-	40	1	
22IURA0304L	Basics of Electrical and Electronics systems Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0305L	Engineering Mechanics	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0306L	Engineering Drawing Lab	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IURA0307L	Introduction to CAD Lab	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IUCC0306L	Effective Communication and Soft Skill Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	Audit	
Total			19	2	16	140	140	270	420	80	1050	0	0	108	168	32	420	24	

(Semester: Fourth)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IUCC0401B	Mathematics - IV	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0402T	Machine Drawing	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0403T	Strength of Materials	Theory	3	1	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0404T	Mechanical Measurement and Control	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0405T	Manufacturing Processes	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0407T	Basic Thermodynamics	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IUCC0406B	Introduction of Biology	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0402L	Machine Drawing Lab	Practical	-	-	4	-	-	100	-	-	100	-	-	40	-	-	40	2	
22IURA0403L	Strength of Materials Lab	Practical	-	-	2	-	-	60	-	40	100	-	-	24	-	16	40	1	
22IURA0404L	Mechanical Measurement and Control Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0405L	Manufacturing Processes Lab	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IURA0407L	Basic Thermodynamics Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
Total			21	2	14	140	140	320	420	80	1100	0	0	128	168	32	440	30	

Program Name: Robotics & Artificial Intelligence																			
(Semester: Fifth)																			
Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA0501T	Fluid Mechanics	Theory	4	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0502T	TheoryofMachinesandMechanism	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0503T	Solid Modeling	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0504T	MaterialsScience	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0505T	ProgramminginC	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
GS-01	Gandhian Studies	Theory	2	0	0	20	-	-	30	-	50	-	-		12		20	Audit	
22IURA0501L	Fluid Mechanics Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	08	20	1	
22IURA0502L	TheoryofMachinesandMechanismLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0503L	Solid Modeling Lab	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IURA0504L	MaterialsScienceLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0505L	ProgramminginCLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
Total			18	0	12	120	100	240	330	60	850	0	0	96	132	24	340	21	
(Semester: Sixth)																			
Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA0601T	AdvanceManufacturingProcesses	Theory	4	-	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0602T	IndustrialAutomation	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0603T	IndustrialEngineering	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0604T	Python	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0605T	ObjectOrientedProgrammingUsingC++	Theory	4	-	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
CSS	Communication Skill	Theory	2	-	-	10	10		30	-	50				12		20	2	
CSS-L	Communication Skill	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0601L	AdvanceManufacturingProcessesLab	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IURA0602L	IndustrialAutomationLab	Practical			2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0603L	IndustrialEngineeringLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0604L	PythonLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0605L	ObjectOrientedProgrammingUsingC++Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	10	1	
Total			19	0	14	110	110	290	330	60	900	0	0	116	132	24	350	26	

Program Name: Robotics & Artificial Intelligence

(Semester: Seventh)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA0701T	Thermal Engineering	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0702T	Machine Learning	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0703T	Design of MachineElements - I	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0704T	Fluid Machinery	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0705T	ManagementAccounting for Engineers	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0706T	Electronic Devices andCircuits	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0701L	Thermal EngineeringLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0702L	Machine Learning	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0703L	Design of Machine Elements - I Lab	Practical			2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0704L	Fluid Machinery Lab	Practical			2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0706L	Electronic Devices andCircuits Lab	Practical			2	-	-	30	-	20	50	-	-	12	-	8	20	1	
Total			18	0	10	120	120	190	360	60	850	0	0	76	144	24	340	23	

(Semester: Eight)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA0801T	MechanicalMeasurements and Metrology	Theory	4	-	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0802T	Design of Machine Elements - II	Theory	4	-	-	20	20	-	60	-	100	-	-	-	24	-	40	4	
22IURA0803T	Hydraulic &Pneumatic systems	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0804T	Robot Operatingsystems	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
OEL	Open Elective	Theory	2	-	-	20	-	-	30	-	50	-	-	-	12	-	20	2	
22IURA0805L	Mechanical Measurements and Metrology Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA0802L	Design of Machine Elements - II	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0803L	Hydraulic & Pneumatic systems Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0804L	Robot Operating systems Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
Total			16	0	8	100	80	140	270	60	650	0	0	56	108	24	260	20	

Program Name: Robotics & Artificial Intelligence

(Semester: Ninth)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA0901T	Additive Manufacturing	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0902T	Kinematics & Dynamics of Robots	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0903T	Machine Learning	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0904T	Sensors &Transducers	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0905T	Department Elective –I	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA0901L	AdditiveManufacturing Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0902L	Kinematics &Dynamics of Robots Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0903L	Machine Learning	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA0904L	Sensors &Transducers Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
Total			15	0	8	100	100	140	300	60	700	0	0	56	120	24	280	19	

(Semester: Tenth)

Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA1001T	Internet of Things	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1002T	Robotics and Automation	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1003T	Automatic ControlSystems	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1004T	Artificial Intelligence	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1005T	Department Elective –II	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1006T	Start ups & Incubators	Theory	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Audit	
22IURA1001L	Internet of Things Lab	Practical			2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA1002L	Robotics andAutomation Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA1003L	Automatic ControlSystems	Practical	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	2	
22IURA1004L	Artificial IntelligenceLab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA1005L	Department Elective – IILab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA1006L	Start ups & IncubatorsLab	Practical			2			50	-	-	50	-	-	20	-	-	20	Audit	
Total			17	0	12	100	100	220	300	80	800	0	0	88	120	32	320	21	

Program Name: Robotics & Artificial Intelligence																			
(Semester: Eleventh)																			
Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA1101T	Automation Systems Design	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1102T	Object Recognition and Speech Processing	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1103T	Microprocessors &Microcontrollers	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1104T	Field and Service Robotics	Theory	3	-	-	20	20	-	60	-	100	-	-	-	24	-	40	3	
22IURA1101L	Automation Systems DesignLab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA1102L	Object Recognition and Speech Processing Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA1103L	Microprocessors & Microcontrollers Lab	Practical	-	-	2	-	-	30	-	20	50	-	-	12	-	8	20	1	
22IURA1104L	Field and Service Robotics Lab	Practical	-	-	2	-	-	50	-	-	50	-	-	20	-	-	20	1	
22IURA1104P	Major Project - II	Project	-	-	4	-	-	60	-	40	100	-	-	24	-	16	40	1	
Total			12	0	12	80	80	200	240	100	700	0	0	80	96	40	280	17	
(Semester: Twelth)																			
Course code	Course Title	Type	Teaching Scheme			Evaluation Scheme (Marks)						Minimum Passing (Marks)						Credit	Remarks
						Internal			External		Total	Internal			External		Total		
			L	T	P	CA	MSE	TW	ESE	PR		CA	MSE	TW	ESE	PR			
22IURA1201I	Internship	Internship	-	-	30	-	-	100	-	200	300	-	-	40	-	80	120	15	
Total			0	0	30	0	0	100	0	200	300	0	0	40	0	80	120	15	

Abbreviations:

L-Lecture,T-Tutorial,P-Practical,CA-ContinuousAssessment,MSE-MidSemesterExamination,ESE-EndSemesterExamination,PR-Practical,TW-TermWork.Note:*and#toindicateanyoneelectivesubjecttobeselectedbythestudents.
Pleasenotethefollowing:
Auditcourses.(GandhianStudies,Communicationskills,Environmentstudiesandopenelectivestobementionedintheappropriatesem.WhethertobecountedforSGPAcalculationornot.Pleaseensurethatthespellings ofnamesarecorrect.The weightageofmarksarecorrectaspercreditstructureand Namesofcoursesarewritteninfull.

Department Elective-I	Code	Department Elective -II	Code
BigDataTechnology	22IURA0905T-1	Bio Engineering	22IURA1005T-1
AI in Manufacturing	22IURA0905T-2	Application of AI in Healthcare	22IURA1005T-2