RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		E	0	3	4	0		1	1	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Explain 8085 Microprocessor, its architecture and memory mapping.
LO Description	Demonstratethe architecture of 8085 Microprocessor.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-01	8085 Microprocessor: Architecture, Pin Diagram with function of each pin.	Lab demonstration, hands on practice, lab assignments, V-Lab.	• Teacher will explain the contents • Teacher with support from lab staff will demonstrate the procedure of lab experiments. • Student will conduct lab assignment based on these experiments.	-	4	Lab manual, charts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.	

SCHEME OF ASSESSMENT

S. No.	MethodofAssessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-01	Internal practical	**Student will be asked to** (and/or) 1. Assemble and explain different blocks of 8085Architecture. 2. Draw the Pin Diagram of 8085 Microprocessor. 3. List out and verify the function of given pin of 8085.	10	Rubrics, Rating scale	Internal

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		1	2	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Explain 8085 Microprocessor, its architecture and memory mapping.
LO Description	Define function of various blocks, buses and cycles of 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-02	Block Diagram and its description- Register Array, ALU, Timing and Control Signals Address, Description of Address bus, data bus and control bus. Machine cycle & BUS Timing	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-02	External Theory Exam	**Studentwillbeaskedto(and/or):** 1. Compares different cycle of 8085 microprocessors. 2. Describe the function of ALU and Flag Resister. 3. Describe the buses of microprocessor.	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		1	3	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Explain 8085 Microprocessor, its architecture and memory mapping.
LO Description	Compare differentmemory mapping techniques and interrupts of 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching– Learning Method	DescriptionofT-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-03	Memory Interfacing, IO Interfacing, Block Diagram of Memory and I/O Interfacing, 8085 Interfacing Pins. Addressing modes of 8085. Interrupts and its types. Memory Mapped I/O & I/O mapped I/O	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-03	External Theory Exam	**Student will be asked to**(and/or): 1. Compare various Memory mapping techniques of 8085. 2. What are interrupts and explain each types. 3. Describe Addressing modes of 8085. 4. Calculate the number of address lines required to access an 8K byte memory bank in 8085 microprocessor.	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		E	0	3	4	0		2	4	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Identify the microcontroller 8051 and its architecture.
LO Description	Model the architecture of Microcontroller 8051.

SCHEME OFSTUDY

S. No.	Learning Content	Teaching–Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
LO-04	Introduction to micro-controller, Comparison between microprocessor and micro-controller, 8051 Microcontroller and its architecture, Pin diagram and its description	Lab demonstration, hands on practice, lab assignments, V-Lab.	• Teacher with support from lab staff will demonstrate the procedure of lab experiments. • Student will conduct lab assignment based on these experiments.	-	4	Lab manual, charts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-04	Internal practical	**Student will be asked to**(and/or): 1. Demonstrate the architecture of 8051. 2. Sketch the explain pin diagram of 8051 and verify pins.	10	Rubrics, Rating scale	Internal

ADDITIONALINSTRUCTIONSFORTHEHOD/FACULTY(IFANY)

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0	3	2	5	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Identify the microcontroller 8051 and its architecture.
LO Description	Explain block diagram and registers of Microcontroller 8051.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-05	Block diagram of 8051 I/O ports Pins and their functions, Registers 8051 data type, On-chip ROM memory and RAM Memory organization, register banks, stack and stack pointer, SFR registers, Registers - A, B, SP, DPTR, PC and SFRs.	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-05	External Theory Exam	**Student will be asked to** (and/or) 1. Draw and explain the block diagram of 8051. 2. Describe and relate various register of 8051. 3. Draw the block diagram of 8051 and explain each block.	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		2	6	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Identify the microcontroller 8051 and its architecture.
LO Description	Describe I/O ports and Machine cycles in 8051 Microcontroller.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-06	I/O ports structure and operation bit address. General Format and functions of each bit of PSW SFRs, machine cycle, Time delay calculations. Machine Cycles. Calculation of Time delay for different cycles of microcontroller.	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-06	Internaltheory	**Student will be asked to** 1. Explain I/O structure of 8051. 2. Calculate the time delay for different cycles of microcontrollers.	10	Question paper, Rating scale	Internal

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	3	0	3	2	7	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Develop the program using Assembly Language of 8085.
LO Description	Identify different instructions formats and sets of Microprocessor 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-07	Instruction Format Instructions Set and their classification. Data Transfer operation	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-07	External Theory Exam	**Student will be asked to**(and/or): 1. Explain different Instruction set of 8085. 2. Describe data transfer operation of 8085. 3. Explain 1 byte,2 byte and 3 byte instructions of 8085. 4. Classify instruction of 8085 microprocessor based on their working/ operation (Arithmetic operation Logic operation jumping looping etc).	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		3	8	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Develop the program using Assembly Language of 8085.
LO Description	Utilize the arithmetic, logic and branch operation in programming of 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching–Learning Method	DescriptionofT-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-08	Arithmetic operation Logic operation Branch Operation Stack, Subroutine and related instruction	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-08	External Theory Exam	**Student will be asked to(and/or):** 1. Compare different operations of 8085 programming. 2. Describe arithmetic operation. 3. Explain Stack, subroutine instructions in 8085.	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		3	9	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Develop the program using Assembly Language of 8085.
LO Description	Execute simple programs in 8085.(Psychomotor)

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-09	Write assemble and execute a simple program in 8085 on Arithmetic operation Logical operation Branch Operation Stack, Subroutine and related instruction	Lab demonstration, hands on practice, lab assignments, V-Lab.	• Teacher with support from lab staff will demonstrate the procedure of lab experiments. • Student will conduct lab assignment based on these experiments.	-	5	Lab manual, charts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-09	External practical	**Student will be asked to** 1. Write a program in 8085 to perform the given operation. (Refer list of practical)	10	Rubrics, Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
RGPV (Diploma Wing) Bhopal		**SCHEMEFORLEARNING OUTCOME**	**Branch Code**			**Course Code**			**CO Code**	**LO Code**	FormatNo.**4**
			E	*0*	*3*	*4*	*0*		*3*	*10*	
COURSE NAME	**Microprocessor and Microcontroller**										
CO Description	Write and execute assembly language programs for 8051 Microcontroller.										
LO Description	Classify addressing modes and instruction set of 8051 with example										

SCHEME OF STUDY

S. No.	Learning Content	Teaching– Learning Method	DescriptionofT-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-10	Addressing Modes : Immediate, Register, Direct, Indirect, Indexed, Relative and bit addressing Instruction set : Data Transfer, Arithmetic, Logical, Branching, and Machine Control	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-10	External Theory Exam.	**Student will be asked to** 1.Explain addressing mode if 8051 2.Explain instruction set of 8051	10	Question paper, Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
RGPV (Diploma Wing) Bhopal		**SCHEMEFORLEARNING OUTCOME**	**Branch Code**			**Course Code**			**CO Code**	**LO Code**	Format No. **4**
			E	*0*	*3*	*4*	*0*		*4*	*11*	
COURSE NAME	**Microprocessor and Microcontroller**										
CO Description	Write and execute assembly language programs for 8051 Microcontroller.										
LO Description	Analyze particular programming concept on 8051 Microcontroller as per requirement.										

SCHEME OF STUDY

S. No.	Learning Content	Teaching–Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-11	Arithmetic, logical instruction, Looping, Counting, sorting and Indexing.	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture- NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-11	Internal theory	**Student will be asked** **1.** Describe the programmingconcept to solve arithmetic operation using 8051. **2.** Write a program based on Logical instruction of 8051. **3.** Explain the programming concept of counting on 8051 with the help to example.	10	Question paper, Rating scale	Internal

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		4	12	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Write and execute assembly language programs for 8051 Microcontroller.
LO Description	Develop programs to perform the operations on 8051 microcontroller.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-12	Programs on arithmetic and logic instructions, Looping, Counting, sorting and Indexing. Data manipulation, Masking, Stack operation.	Lab demonstration, hands on practice, lab assignments, V-Lab.	• Teacher with support from lab staff will demonstrate the procedure of lab experiments. • Student will conduct lab assignment based on these experiments.	-	4	Lab manual, charts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-12	External practical	**Student will be asked to** **1.** Write the program in 8051 to perform the given operation on kit. (Refer list of practical)	10	Rubrics, Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		5	13	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Describe Peripherals and its interfacing with 8085
LO Description	Illustrate Pin diagram and block diagram of various peripherals.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-13	Peripherals: PIN DIAGRAM,BLOCK DIAGRAM, INTERFACING WITH 8085 8255programmable peripheral interface 8279programmable key board interface 8259 programmable interrupt controllers 8257 DMA controller.	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture- NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-13	End Semester Theory Exam	**Student will be asked to (**and/or) 1. Explain the given peripheral device. 2. Draw the block diagram of given peripheral.	10	Question paper, Rating scale	External

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		5	14	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Describe Peripherals and its interfacing with 8085
LO Description	Demonstrate the interfacing of various peripherals with 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
LO-14	Interfacing of 8255, 8279, 8259 and 8257 with 8085	Interactive classroom lecture, PPT, Video, Demonstration, quiz, assignments.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	--	Text Books, PPT, Handouts, chalk board, charts, Video lecture-NPTEL and others.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-14	Internal theory	**Student will be asked to (**and/or) 1. Explain the interfacing of given peripherals. 2. Describe various concept to interface the given peripherals with 8085 microprocessor.	10	Question paper, Rating scale	Internal

RGPV (Diploma Wing) Bhopal	SCHEMEFORLEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	FormatNo.4
		E	0	3	4	0		5	15	

COURSE NAME	**Microprocessor and Microcontroller**
CO Description	Describe Peripherals and its interfacing with 8085.
LO Description	Develop assembly language program to use peripherals with 8085.

SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /TutHrs.	LRs Required	Remarks
LO-15	Develop assembly language program to use peripherals with 8085.	Lab demonstration, hands on practice, lab assignments, V-Lab.	• Teacher with support from lab staff will demonstrate the procedure of lab experiments. • Student will conduct lab assignment based on these experiments.	-	4	Lab manual, charts, experimental trainer instruments/kit with measuring instruments, computer with relevant simulation software and high speed internet.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
LO-15	Internal practical	**Student will be asked to** 1. Develop a program for the given peripherals.(Refer list of practical)	10	Rubrics, Rating scale	Internal

ADDITIONALINSTRUCTIONSFORTHEHOD/FACULTY(IFANY)