GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL205PR** SUBJECT NAME : **Microprocessor**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Study of 8085 microprocessor kit	1	Aug-15			
Addition of two 8 bit numbers with and without carry	2	Sep-15			
Subtraction of two 8 bit numbers with and without borrow	2	Sep-15			
Multiplication of two 8 bit number using successive addition and resistor shifting method	2	Oct-15			
Program to find ones compliment of 1 byte number	2	Oct-15			
Program to find ones compliment of 2 byte number	4	Nov-15			
Program to find MASK OFF for LSB and MSB compliment of 1 byte number	1	Nov-15			
Program to find out square of a number.	1	Dec-15			
Programs to find sum of first ten natural number involving data arrays	2	Dec-15			
Programs to Generating odd numbers.	2	Jan-16			
Programs to Data transfer schemes	1	Jan-16			
Programs to Sorting of odd/even numbers.	2	Jan-16			
Programs to Finding largest and smallest numbers.	1	Feb-16			
Programs to Arrange data array in ascending / descending order	1	Feb-16			
Programs using stack	1	Mar-16			
Programs using subroutine.	1	Mar-16			
Debugging of programs using single stepping on kit	1	Mar-16			
TOTAL	27				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL 201** SUBJECT NAME : **Electronic Components and shop Practices**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Classification of resistors	1	Aug-15			
Resistor color coding	1	Aug-15			
Parameters related with resistors	2	Sep-15			
Carbon composition resistor	1	Sep-15			
MFR, CFR	1	Sep-15			
Variable resistors	2	Sep-15			
Semi variable resistors	1	Sep-15			
LDR, VDR	1	Oct-15			
Thermistor, sensistor, Fusible resistor	1	Oct-15			
Classification of capacitors	1	Oct-15			
Mica, paper, plastic film capacitors	2	Oct-15			
Ceramic and electrolytic capacitors	2	Oct-15			
Variable capacitors, Failure in capacitors	1	Oct-15			
Identification marking of capacitor	1	Oct-15			
Inductors- concept, application and classification	1	Nov-15			
Terms related to coils	2	Nov-15			
Air core, iron core, ferrite core inductors	1	Nov-15			
Soldering concept, Principle of soldering Soldering materials and problems	1	Nov-15			
Hand and dip soldering method, Desoldering techniques	1	Dec-15			
Wave and ultrasonic soldering method	1	Dec-15			
PCB concept , Advantages & Limitations, Raw materials of PCB	1	Dec-15			
Types and specifications of PCB	1	Dec-15			
PCB layout and artwork design	2	Jan-16			
Resist coating- tape and paint	1	Jan-16			
Resist coating- silk screen and photographic	2	Jan-16			
Etching, Resist removal, Drilling and lacquer coat	1	Jan-16			
Block diagram of PCB plant	1	Jan-16			
Safety requirement	1	Jan-16			
Battery eliminator circuit artwork	1	Feb-16			
Audio amplifier circuit	1	Feb-16			
Transformer principle and equation	1	Feb-16			
Construction detail	2	Feb-16			
Design procedure of transformer	1	Feb-16			
Construction of IFT	1	Mar-16			
Impregnation plant – need and schematic	1	Mar-16			
Working procedure for impregnation	1	Mar-16			
Surface Mount Devices	1	Mar-16			
TOTAL	45				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL 205** SUBJECT NAME : **Digital Electronics**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Digital signal & its representation	2	Aug-15			
Advantages of digital techniques	1	Aug-15			
Introduction to Boolean algebra & its theorems	1	Aug-15			
Simplification of Boolean expression & perfect induction method	2	Sep-15			
Logic gate & its types	1	Sep-15			
Universal gates	1	Sep-15			
Positive, negative & tristate logic	2	Sep-15			
Representation of Boolean expression- SOP	1	Sep-15			
Representation of Boolean expression- POS	1	Oct-15			
Introduction to K-map	1	Oct-15			
Simplifying K-map to obtain SOP expression	1	Oct-15			
Simplifying K-map to obtain POS expression	2	Oct-15			
Donot care conditions	2	Oct-15			
Binary half & full adder, subtractors	1	Oct-15			
Binary serial & parallel adder	1	Oct-15			
BCD adder	1	Nov-15			
Parity bit generator & checker	2	Nov-15			
Binary comparator	1	Nov-15			
Multiplexer & Demux	2	Nov-15			
Encoders	1	Dec-15			
Decoders	1	Dec-15			
Sequential logics & flip flop charateristics	1	Dec-15			
Flip flop types & triggering	2	Dec-15			
Shift register & its classification	2	Jan-16			
Universal shift register	1	Jan-16			
Asynchronous counters	2	Jan-16			
Synchronous counters	1	Jan-16			
Mod counters	1	Jan-16			
Ring , Johnson & programmable counters	1	Jan-16			
Binary multiplication using shift registers	1	Feb-16			
Binary divison using shift registers	1	Feb-16			
Programmable Logic devices	1	Feb-16			
Classification & Charateristics of digital IC's	1	Feb-16			
RTL and DTL	2	Feb-16			
TTL	1	Feb-16			
ECL and IIL	1	Mar-16			
PMOS, NMOS, CMOS Circuits	1	Mar-16			

TOTAL	48				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL 207** SUBJECT NAME : **Microprocessor**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Decimal, binary, octal and hexa-decimal number system	2	Aug-15			
Conversion of a number from one system to another system	2	Aug-15			
Binary addition, subtraction and multiplication	2	Sep-15			
Representation of positive and negative numbers	1	Sep-15			
1's complement and 2's complement	0.5	Sep-15			
Subtraction using 2's complement	1.5	Sep-15			
Parity bit	1	Sep-15			
Binary codes (Gray, Excess -3, Hamming codes), ASCII code	1.5	Sep-15			
Floating point number	0.5	Oct-15			
Microprocessor concept	1	Oct-15			
Historical review of microprocessor development	2	Oct-15			
Organization of a micro computer	1	Oct-15			
Internal block diagram	1	Oct-15			
8085 signals and their functions	1	Oct-15			
Demultiplexing of buses	2	Oct-15			
Pin configuration and logical diagram.	1	Nov-15			
Instruction format	1	Nov-15			
Mnemonics	1	Nov-15			
Opcode and operand	1	Nov-15			
Instruction length	1	Dec-15			
Classification of instruction	0.5	Dec-15			
Data transfer	0.5	Dec-15			
Arithmetic	0.5	Jan-16			
Logical	0.5	Jan-16			
Branching	0.5	Jan-16			
Machine control	0.5	Jan-16			
Different interrupts of 8085 Microprocessor	1	Jan-16			
Addressing modes	1	Jan-16			
Stack operation and related instructions	2	Jan-16			
Subroutine and related instructions	1	Feb-16			
Machine and assembly language	0.5	Feb-16			
Assembly language programming	1.5	Feb-16			
Debugging of programs	1	Feb-16			
Memory types	1	Feb-16			
Memory organization	1	Feb-16			
Basic concept of memory interfacing and I/O interfacing	1	Feb-16			

Difference between peripheral I/O and memory mapped I/O	1	Feb-16			
Instruction cycle - machine cycle, T-states	1	Mar-16			
Fetch cycle	1	Mar-16			
Memory read and write cycle	1	Mar-16			
I/O read and write cycle	1	Mar-16			
Interrupt acknowledge cycle	1	Mar-16			
Bus idle cycle	0.5	Mar-16			
DMA cycle	0.5	Mar-16			
Machine cycle with wait states.	0.5	Mar-16			
Programs using delays and counters	1	Mar-16			
Limitation of 8 bit Microprocessor.	0.5	Mar-16			
TOTAL	48				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL301** SUBJECT NAME : **Electronic Circuits**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
CS amplifier its equivalent circuits and voltage gain calculation at low and high frequency	1	Aug-15			
CD amplifier its equivalent circuits and voltage gain calculation at low and high frequency	1	Aug-15			
Multistage Amplifier	1	Sep-15			
Different types of coupling					
Direct coupling					
R.C. coupling					
Transformer coupling					
Distortion in amplifiers	1	Oct-15			
Frequency response of an amplifier	1	Oct-15			
Effect of cascading on gain and bandwidth		Oct-15			
Simple calculation for gain and bandwidth for RC coupled amplifier	2	Oct-15			
Measurement of input and output impedance of an amplifier	1	Oct-15			
Square wave testing of an amplifier	1	Oct-15			
Comparison and application of coupled amplifiers	1	Oct-15			
Design analysis of a RC coupled amplifier for given parameters	1	Nov-15			
Power Amplifier :	1	Nov-15			
Classification of power amplifier		Dec-15			
Class A large signal amplifier and its analysis for output power	1	Dec-15			
Second harmonic distortion	1	Dec-15			
Transformer coupled audio power amplifiers	1	Dec-15			
Efficiency and conversion efficiency	1	Jan-16			
Push pull amplifiers	1	Jan-16			
Class B power amplifier and its efficiency	1	Jan-16			
Class AB operation and cross over distortion	1	Jan-16			
Complementary symmetry push-pull amplifier	1	Jan-16			
Idea of phase inverter		Jan-16			
Feedback Amplifier :	1	Feb-16			
Basic concept of feedback		Feb-16			
Classification of feedback amplifier		Feb-16			
Advantages of negative feedback	1	Mar-16			
Analysis of various Negative feedback amplifier circuits.	1	Mar-16			

Comparison of negative voltage feedback and negative current feedback	1	Mar-16			
Oscillators :					
Positive feedback concept					
Barkhausen criterion					
Working and calculation of frequency for Hartley (series and shunt) , Colpitt's, Clapp,					
Transistor at High Frequency and Special Circuit :					
High frequency small signal π model of transistor					
Current gain, alpha cut off frequency (fα)					
fT , fβ and their relationship					
Darlington pair and bootstrapping					
Cascode amplifier					
Multivibrator					
Transistor as a switch and Switching times.					
Bistable Multivibrator (BMV)					
Fixed bias and self bias BMV and their					
Symmetrical and unsymmetrical triggering					
Working of Schmitt trigger					
Hysterisis elimination					
Monostable Multivibrator (MMV)					
Working of MMV (collector coupled)					
Working of emitter coupled MMV					
Comparison of collector coupled MMV with emitter coupled MMV					
Astable Multivibrator (AMV)					
Working of collector coupled AMV					
Working of emitter coupled AMV					
Comparison of collector coupled with emitter coupled AMV					
Application of Multivibrators					
Blocking Oscillator and Time Base Generators					
Need of blocking oscillator					
Working of Mono stable and Astable Blocking oscillator					
Need of time base general					
General features of time base signal.					
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GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL 201PR** SUBJECT NAME : **Electronic Components and shop Practices**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Study of different tools used in electronics workshop.	1	Aug-15			
Study of analog and digital multimeters and their uses for measuring voltage, current and resistance.	2	Sep-15			
To study and read data manual for different components (diodes & transistors) and their equivalents.	2	Sep-15			
Use of CRO for voltage, frequency and phase measurements.	2	Oct-15			
Use of function generator for different waveform generation.	2	Oct-15			
Soldering and de-soldering of different components on PCB by soldering iron	4	Nov-15			
Soldering and de-soldering of different SMD on PCB.	1	Nov-15			
Cable preparation for RJ - 11, RJ-45, flat ribbon and 9-pin D-type connectors and their	1	Dec-15			
Identification of different type of connectors	1	Dec-15			
Study of coil winding machine	1	Jan-16			
Familiarization with different type of stampings and bobin	1	Jan-16			
To design winding and test small transformer of single and tapped secondary	2	Jan-16			
To design winding and test the transformer of multiple secondary	1	Feb-16			
Study of PCB plant equipment	1	Feb-16			
To prepare art work PCB using software (circuit maker / Easy PC/ multi sim).	2	Mar-16			
Design and fabrication of PCB using silk screen / photography methods.	2	Mar-16			
TOTAL	26				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL205PR** SUBJECT NAME : **Digital Electronics**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Verify the truth tables of NOT, AND, OR	1	Aug-15			
Verify the truth tables NAND, NOR, EX-OR, EX-NOR gates	2	Sep-15			
Design a NOT, AND, OR	2	Sep-15			
Design a EX-OR, EX-NOR gates using universal gates	2	Oct-15			
Design a binary half and full adder	2	Oct-15			
Design a binary half and full subtractor	4	Nov-15			
Study of BCD to 7 segment decoder	1	Nov-15			
Verify the truth table of RS, D	1	Dec-15			
Verify the truth table J-K, M/S J-K,D,T flip-flops.	2	Dec-15			
Study of asynchronous binary ripple up, down and up-down and different mod counters	2	Jan-16			
Study of synchronous counters	1	Jan-16			
Study of decade counter	2	Jan-16			
Study of programmable counter	1	Feb-16			
Study of a shift register using flip flops	1	Feb-16			
Study of ring counter using flip flops	1	Mar-16			
Study of twisted ring counter.	1	Mar-16			
Study of PLD.	1	Mar-16			
TOTAL	27				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL301PR** SUBJECT NAME : **Electronic Circuits**

FACULTY NAME : **KAPIL SOLANKI** DESIGNATION : **LECTURER (Electronics)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
Study of JFET amplifier and plot its frequency response	1	Aug-15			
Study of depletion and enhancement MOSFET amplifier and plot its	2	Sep-15			
Plot the frequence response of two stage R-C coupled amplifier and measure its bandwidth	2	Sep-15			
Plot the frequence response of transformer coupled amplifier	2	Oct-15			
Plot the frequency response of direct coupled amplifier	2	Oct-15			
Study of transistor push-pull amplifier	1	Nov-15			
Study of complimentary transistor power amplifier	1	Nov-15			
Study of phase inverter	1	Nov-15			
Study of Dartington pair	1	Nov-15			
Plot the frequency response of negative feedback amplifier and observe the effect of negative feed back	1	Dec-15			
Study of Hartley oscillator and calculate frequency of oscillation	1	Dec-15			
Study of Colpitt's oscillator and calculate frequency of oscillation	1	Jan-16			
Study of RC phase shift oscillator	1	Jan-16			
Study of a Wein bridge oscillator and calculate frequency of oscillation.	1	Jan-16			
Study of crystal oscillator	1	Feb-16			
Study of clapp oscillator	1	Feb-16			
Study of monostable multivibrator	1	Mar-16			
Study of bistable multivibrator	1	Mar-16			
Study of astable multivibrator	1	Mar-16			
TOTAL	23				