

Government College of Engineering, Karad					
Second Year (Sem – III) B. Tech. Civil Engineering					
IOE3345: Open Elective- I- Material Management with SAP S/4HANA					
Teaching Scheme			Examination Scheme		
Lectures	03 Hrs/week		ISE	50	
Tutorials	00 Hrs/week		ESE	50	
Total Credits	03				
			Duration of ESE	As applicable	
Prerequisite :					
Course Outcomes (CO): Students will be able to					
CO1	Demonstrate proficiency in navigating the SAP S/4HANA interface and understanding the fundamental architecture of the Materials Management (MM) module.				
CO2	Describe and configure procurement processes, including enterprise structure, source determination, and document release procedures within the SAP MM environment.				
CO3	Execute core procurement operations such as creating purchase requisitions, purchase orders, goods receipts, and invoice verifications using standard and advanced transactions.				
CO4	Manage and customize master data related to materials, business partners, purchasing info records, and organizational units essential for MM operations.				
CO5	Implement specific procurement processes including self-service requisitioning, invoicing plans, blanket purchase orders, and flexible workflow configuration for document release.				
	Course Contents			CO	Hours
Unit 1	Navigation in SAP S/4HANA: Getting an Overview of SAP S/4HANA, Navigation Processes and Enterprise Structure in Procurement: Delineating Procurement Processes, Identifying the Organizational Units in Procurement			CO1, CO 2	(4)
Unit 2	Plain Procurement Process: Creating a Purchase Order, Posting a Goods Receipt, Entering an Invoice Master Data in Procurement: Maintaining Business Partner Master Data, Maintaining Material Master Data, Maintaining Purchasing Info Record, Analyzing Material Valuation			CO3, CO4	(5)
Unit 3	Stock Material Compared with Consumable Material: Comparing Procurement Processes for Stock and Consumption, Creating a Purchase Requisition, Creating a Purchase Order with Reference to a Purchase Requisition, Entering Valuated and Non-Valuated Goods Receipts. Advanced Transactions in Procurement: Maintaining a Purchasing Contract, Creating a Purchase Requisition with Source Determination, Using Advanced Transactions for Purchase Order Creation, Using the Advanced Transaction for Goods Receipt, Using the Advanced Transaction for Invoice Verification			CO3	(6)
Unit 4	Customizing of Organizational Units: Defining Organizational Units in Materials Management, Defining and Assigning Plants Purchasing Master Data: Extending Material Master Records, Creating Business Partners, Using Partner Functions in Purchasing			CO4	(5)
Unit 5	Sources of Supply and Conditions: Creating Purchasing Info Records, Creating Special Info Records, Using Special Functions in Info Records, Creating Contracts, Creating Contracts for Material Groups, Creating Scheduling Agreements Without Release Documentation Source Determination: Controlling Source Determination with Source Lists, Maintaining Source Lists, Controlling Source Determination with Quota Arrangements, Executing the Planning Run with Quota Arrangements, Identifying Additional Aspects of Source Determination, Blocking Sources of Supply			CO2	(6)
Unit 6	Optimized Purchasing: Processing Unassigned Purchase Requisitions, Processing Assigned Purchase Requisitions, Monitoring Purchase Orders Special User Parameters for Purchasing:			CO2, CO3	(5)

	Analyzing Special Aspects in Customizing, Defining Function Authorizations for Buyers		
Unit 7	Document Release Procedure: Releasing Purchase Requisitions, Releasing Purchasing Documents, Configuring Release Procedures in Customizing, Creating Release Procedures, Setting Up Flexible Workflows in Purchasing. Self-Service Requisition: Performing a Self-Service Process, Confirming a Goods Receipt	CO5	(5)
Unit 8	Specific Procurement Processes: Using Invoicing Plans, Creating Blanket Purchase Orders	CO5	(4)
Text Books			
1.	SAP MM (Covers SAP ECC 6.0) Black Book Author: Kogent Learning Solutions Inc. Publisher: Dreamtech Press ISBN: 9788177223804 Edition: Latest		
2.	SAP MM Purchasing: Technical Reference and Learning Guide Author: P.K. Agrawal Publisher: PHI Learning Pvt. Ltd. ISBN: 9788120348516 Edition: Latest		
3.	SAP Materials Management (with CD-ROM) Author: Mukesh Shukla Publisher: Tata McGraw-Hill Education ISBN: 9781259028390 Edition: 2nd Edition		
Reference Books			
1.	Materials Management with SAP S/4HANA Author: Jawad Akhtar Publisher: SAP Press ISBN: 9781493225385 Edition: 3rd Edition, 2024		
Useful Links			
1.	https://www.guru99.com/sap-materials-management.html		
2.	https://www.tutorialspoint.com/sap_mm/index.htm		
3.	https://learning.sap.com/ (Free Learning Journeys for SAP S/4HANA MM)		

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
CO 1	2	1	–	–	3	–	–	–	1	2	1	2
CO 2	2	2	3	–	3	–	–	–	1	2	2	2
CO 3	2	2	3	–	3	–	–	–	1	2	2	2
CO 4	2	2	3	–	3	–	–	–	1	2	2	2
CO 5	2	2	3	–	3	–	–	–	2	2	3	3

Assessment Pattern (with revised Bloom's Taxonomy)

Knowledge Level	ISE	ESE
Remember	8	8
Understand	8	8
Apply	8	8
Analyse	8	8
Evaluate	8	8
Create	10	10
TOTAL	50	50

BOS Chairman

Dept. of Electronics and Telecommunication

Government College of Engineering, Karad				
Second Year (Sem – III) B. Tech. Civil Engineering				
IOE3346 : OE I Lab- Material Management with SAP S/4HANA LAB				
Laboratory Scheme:			Examination Scheme:	
Practical	2 Hrs/week		ISE	25
Total Credits	1		ESE	25
Prerequisite :				
Course Outcomes (CO): Students will be able to				
CO1	Demonstrate the ability to navigate the SAP S/4HANA environment and understand the structure of procurement-related organizational units.			
CO2	Apply core procurement processes such as purchase requisition, purchase order creation, goods receipt, and invoice verification using SAP MM transactions.			
CO3	Manage and customize SAP MM master data including material masters, business partners, and info records, and extend organizational structures as required.			
CO4	Analyze and configure advanced procurement features such as source determination, purchasing contracts, and optimization of procurement operations.			
Course Contents				CO
Experiment 1	Explore SAP S/4HANA GUI and Fiori Interface Log in to SAP S/4HANA and list the key navigation features in SAP MM. Compare SAP GUI with Fiori. Submit screenshots and descriptions of navigation paths.			CO1
Experiment 2	Define and Explain the Enterprise Structure in SAP MM Identify and describe each organizational unit in procurement (Company Code, Plant, Purchasing Org, and Storage Location). Create a hierarchical chart and explain its role.			CO1
Experiment 3	Simulate a Simple Procurement Cycle Using SAP or simulation software, create a purchase order, post a goods receipt, and enter an invoice. Document each step with screenshots and explanations.			CO2
Experiment 4	Analyse Material and Business Partner Master Data Create a new material and vendor in the system. Explain key fields such as material type, industry sector, account group, etc. Include screenshots.			CO3
Experiment 5	Compare Procurement Processes: Stock vs Consumables Prepare a report comparing procurement workflows for stock materials and consumable materials, including implications on inventory and accounting.			CO2
Experiment 6	Create Purchase Requisition with Source Determination Use source list/quota arrangements to auto-determine the vendor during PR creation. Show transaction flow with screenshots.			CO2, CO4
Experiment 7	Advanced Goods Receipt and Invoice Posting Perform goods receipt using MIGO and invoice verification using MIRO. Explain key fields and accounting impact			CO2
Experiment 8	Define and Assign Organizational Units in SAP MM Configure a company code, plant, purchasing org, and assign them in IMG. Submit step-by-step configuration notes and screenshots.			CO3
Experiment 9	Extend Material Master for New Plant and Purchasing View Use MM01 or MM02 to extend an existing material master to a new plant and add purchasing-specific data. Highlight the differences.			CO3
Experiment 10	Create and Use Info Records and Contracts Create a purchasing info record and outline how it links to PO creation. Also, create a contract and release PO against it.			CO3, CO4
Experiment 11	Configure and Analyze Source Determination Create and maintain a source list and quota arrangement. Explain how the system selects vendors during PR to PO conversion.			CO4
Experiment 12	Process and Monitor Purchase Requisitions Create unassigned and assigned PRs. Process them into POs and monitor the status using ME5A or ME2N. Interpret outputs and explain their importance in procurement tracking.			CO2, CO4

List of Submission:	
1.	Minimum number of Experiments : 10

Mapping of COs and POs

PO/ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	1	–	3	–	–	–	1	2	1	2
CO2	2	2	2	–	3	–	–	–	1	2	2	2
CO3	2	2	3	–	3	–	–	–	1	2	2	2
CO4	2	3	3	1	3	–	–	–	2	2	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

Assessment Pattern:

Skill Level (as per CAS Sheet)	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 6	Exp 7	Exp 8	Exp 9	Exp 10	Exp 11	Exp 12	Avg
Task I	15	15	15	15	15	15	15	15	15	15	15	15	
Task II	05	05	05	05	05	05	05	05	05	05	05	05	
Task III	05	05	05	05	05	05	05	05	05	05	05	05	
ISE	25	25	25	25	25	25	25	25	25	25	25	25	


BOS Chairman

Dept. of Electronics and Telecommunication



Government College of Engineering, Karad					
Second Year (Sem – IV) B. Tech. Civil Engineering					
IOE3447: OE II- SAP HANA					
Teaching Scheme			Examination Scheme		
Lectures	02 Hrs/week		ISE	50	
Tutorials	00 Hrs/week		ESE	50	
Total Credits	02				
			Duration of ESE	As applicable	
Prerequisite :					
Course Outcomes (CO):Students will be able to					
CO1	Analyze procurement reporting and analytical tools in SAP S/4HANA and customize purchasing configurations to enhance procurement operations.				
CO2	Apply core inventory management processes such as goods receipts, goods issues, transfer postings, stock transfers, and physical inventory procedures.				
CO3	Customize inventory and supplier master data, movement types, and valuation settings for effective inventory and procurement control.				
CO4	Perform and configure invoice processing scenarios including taxes, delivery costs, evaluated receipt settlement, and GR/IR account maintenance.				
	Course Contents			CO	Hours
Unit 1	Reporting and Analytics: Using Analytical Apps, Using the Procurement Overview App Further Customizing for Purchasing: Creating Document Types in Purchasing, Adjusting the Screen Layout of Purchasing Documents, Creating Account Assignment Categories, Controlling the Output of Messages in Purchasing, Using Condition Technique for Message Determination, Explaining the SAP S/4 HANA Output Management.			CO1	(06)
Unit 2	Introduction to Inventory Management: Defining Inventory Management and Physical Inventory, Moving Goods with the MIGO Transaction Goods Receipts (GRs): Posting a Goods Receipt Without Reference, Posting a Goods Receipt with Reference, Posting a Goods Receipt with Automatic Generation of a Purchase Order, Posting Cancellations, Return Deliveries, and Returns, Applying Order Price Unit in Inventory Management, Applying Tolerances and the Delivery Completed Indicator, Setting Up Date Checks to Goods Receipt for Purchase Order			CO2	(06)
Unit 3	Stock Transfers and Transfer Postings: Performing Transfer Postings, Performing Stock Transfers Between Storage Locations, Performing Stock Transfers Between Plants Reservations: Creating Manual Reservations, Evaluating Reservations			CO2	(04)
Unit 4	Goods Issues (GIs): Posting Unplanned Goods Issues, Posting a Goods Issue with Reference, Configuring Stock Determination Special Procurement Processes: Performing the Process of Subcontracting, Performing the Process of Vendor Consignment,			CO2	(05)
Unit 5	Physical Inventory: Conducting Physical Inventory, Simplifying Physical Inventory Analyses: Applying Stock Lists and Document Lists, Applying Periodic Processing, Using Analytical Apps for Inventory Management			CO1, CO2	(04)
Unit 6	Further Customizing for Inventory Management: Implementing Settings for Documents, Setting Up Movement Types, Applying Other Customizing Settings. Customizing for Supplier Master Data: Defining Settings for Business Partners			CO3	(04)
Unit 7	Invoice Entry:			CO4	(6)



	Working with Logistics Invoice Verification, Using Different Types of Invoice Verification, Parking of Documents, Applying Taxes, Applying Cash Discounts, Entering Invoices in Foreign Currencies, Creating Invoices for Purchase Orders with Account Assignment Subsequent Debit/Credit, Delivery Costs, and Credit Memos: Entering Subsequent Debits/Credits, Entering Delivery Costs, Entering Invoices Without Reference to a Purchase Order, Handling Credit Memos and Reversals, Evaluated Receipt Settlement (ERS), Performing Evaluated Receipt Settlement, GR/IR Account Maintenance, Performing GR/IR Account Maintenance		
Unit 8	Customizing for Material Master Data: Setting Up Material Master Records, Creating Material Types, Setting Up Field Selection for Material Master Records, Defining Field References for Material Master Records Special Features of Material Valuation: Posting Goods Movements for Material Types UNBW and NLAG, Configuring Split Valuation	CO3	(5)
Text Books			
1.	SAP MM Purchasing: Technical Reference and Learning Guide Author: P. K. Agrawal Publisher: PHI Learning, ISBN- 9788120348516, Edition: 1st Edition		
2.	Materials Management with SAP S/4HANA Author: Jawad Akhtar Publisher: SAP Press, ISBN- 9781493225385, Edition: 3rd Edition		
3.	SAP MM: Functionality and Technical Configuration Author: Martin Murray Publisher: SAP Press, ISBN- 9781592291342, Edition: 1st Edition		
Reference Books			
1.	SAP Purchasing and Procurement with SAP MM: Business User Guide, Author: Matt Chudy and Luis Castedo, Publisher: SAP Press, ISBN- 9781493215171, Edition: 2nd Edition		
Useful Links			
1.	https://fioriappslibrary.hana.ondemand.com		
2.	https://www.sapnuts.com/tutorials/sap-migo.html		
3.	https://www.erpgreat.com/materials/stock-transfer-and-transfer-postings.htm		
4.	https://www.erpfuction.com/inventory-reports-in-sap-mm/		

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
CO 1	2	2	3	1	3	–	–	–	1	2	2	2
CO 2	2	2	3	–	3	–	–	–	1	2	2	2
CO 3	2	2	3	–	3	–	–	–	1	2	2	2
CO 4	2	2	3	1	3	–	–	1	1	2	2	2

Assessment Pattern (with revised Bloom's Taxonomy)

Knowledge Level	ISE	ESE
Remember	8	8
Understand	8	8
Apply	8	8
Analyse	8	8
Evaluate	8	8
Create	10	10
TOTAL	50	50



BOS Chairman
Dept. of Electronics and Telecommunication

Assessment Pattern (with revised Bloom's Taxonomy)

Knowledge Level	ISE	ESE
Remember	8	8
Understand	8	8
Apply	8	8
Analyse	8	8
Evaluate	8	8
Create	10	10
TOTAL	50	50



BOS Chairman

Dept. of Electronics and Telecommunication



Government College of Engineering, Karad					
Third Year (Sem – V) B. Tech. Civil Engineering					
IOE3544: OE III- SAP PEOJECT					
Teaching Scheme			Examination Scheme		
Lectures	02 Hrs/week		ISE	50	
Tutorials	00 Hrs/week		ESE	50	
Total Credits	02				
			Duration of ESE	As applicable	
Prerequisite :					
Course Outcomes (CO): Students will be able to					
CO1	Perform detail literature survey on the research topic of work.				
CO2	Carry out detailed mathematical modelling or experimental validation.				
CO3	Draw inferences from the findings and present conclusion.				
CO4	Develop presentation and technical report writing skills.				
Course Contents					CO
The student shall choose any of the topics of interest for Project work using SAP. Project group shall consists of minimum THREE and maximum FIVE students. The group is required to do literature survey, formulate the problem, propose and execute methodology required for project.. - Students will prepare a technical report in prescribed format based on their work. - The assessment of the project will be done at the end of the semester by a committee consisting of three faculty members from the department along with Project Guide. - The students will present their project work before the committee. The presentation of the project shall be of 45 min followed by viva voce. - The project guide will award the marks to the individual student depending on the group average awarded by the committee.					CO 1, CO 2, CO 3, CO 4
Submission: Project report in standard format.					

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
CO 1	2	3	2	2	2	1	1	-	2	-	3
CO 2	3	3	3	3	3	1	1	-	2	1	3
CO 3	2	3	2	3	2	1	1	-	3	-	3
CO 4	1	1	1	-	1	-	-	2	3	1	3

Assessment Pattern (with revised Bloom's Taxonomy)

Knowledge Level	ISE	ESE
Remember	9	9
Understand	9	9
Apply	9	9
Analyse	9	9
Evaluate	9	9
Create	5	5
TOTAL	50	50



BOS Chairman
Dept. of Electronics and Telecommunication

